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THE BUILDER

A JOURNAL FOR THE ARCHITECT AND CONSTRUCTOR.

WITH WHICH IS INCORPORATED "THE BRITISH ARCHITECT."

VOL. CXXVI.—No. 4238. APRIL 25, 1924.

PROFESSIONAL UNITY

WE briefly referred in our last issue to an agreement on the subject of Registration and the absorption of the Society of Architects which has been approved unanimously by the Councils of the Royal Institute of British Architects and the Society of Architects and by a conference of the Allied Societies, but which was subject to the revision of the document by the Society's legal advisers. This revision, we are glad to state, has taken place without any material alteration, and we give, on p. 683, the document in its approved form. The agreement has to be put before the general body of the Institute as the main issue on which the Council propose to take the opinion of the electorate at the forthcoming R.I.B.A. election and, of course, the vote may be hostile, though we shall be very much surprised if such a satisfactory and scarcely to be hoped for result of the long and difficult negotiations which have taken place does not receive the support of a large majority of the electorate. If it does, then the general meeting necessary to confirm the agreement will be held at once, and at last we may reasonably hope for a solution of the most urgent of the problems which have confronted the architectural profession since the formation of the Society of Architects nearly forty years ago —that is, assuming, as we again hope, that the members of the Society will approve of the scheme, as they will have an opportunity of doing, subsequent to its confirmation by the general body of the R.I.B.A.

The proposals contained in the agreement have already been foreshadowed in the daily press, and have been the subject of criticism which has not always been well informed, and which has sometimes suggested a readiness to prejudice the issue before the material facts are known. We have been familiar with the proposals for some time past, but it has not appeared to be desirable to refer to them until the two Councils had completed their negotiations and their proposals were before the profession. The most notable part of the agreement is the proposed absorption of the Society by the R.I.B.A., and we must surely accept this as a wise and inevitable result if we wish to see the profession take its right place with other professional and representative bodies in relation to the public and Government. The proposal is supported by most of the leaders of the profession largely because of the greatly increased importance and value which will be given to the standing and work of one representative society in dealing with matters on which it is desired to influence public opinion, apart from and in addition to the question of Registration. Upon the latter aspect of the proposal the Council of the R.I.B.A. have, on the advice of their Parliamentary Agents, consulted Mr. Edward Shortt, K.C. (late Home Secretary), and his opinion is that the dissolution of the Society of Architects and the admission of its members into the R.I.B.A. would immensely strengthen the hands of the R.I.B.A. in the promotion of a Registration Bill. "Coming to Parliament," he says, "as they would, for the protection of the public as well as for their own better regulation, they would speak with the united and unanimous voice of the whole profession. I am of opinion that their chances of success would be infinitely greater than they would be in present circumstances." This opinion cannot be ignored, and this conclusion and the details of the agreement can be heartily commended to the consideration and support of the electorate. The existence of two societies each nullifying the efforts of the other in an attempt to represent the profession and duplicating work which can be properly carried out only by one society acting for the welfare of its members is an anomaly which has undoubtedly had a prejudicial effect on the profession, and has had little to justify it, and it is a notable achievement of the two Councils to agree that for the good of the profession as a whole the interests of all will be best served by amalgamation, and upon such an agreement both Councils can be warmly congratulated.

In saying this we are not oblivious of the fact that this may not be the opinion of all members of the two bodies, and that some of the details of the agreement may not be acceptable to all parties. Indeed, we already know that the agreement is being opposed, but we hope the opposition will very carefully consider the position and will sooner or later agree that the acceptance of the agreement is the broad and enlightened view to take. Surely all members of the Institute must wish for agreement amongst themselves, that they may be able to leave the methods of politicians to other people, and that the Institute may be free to devote all its efforts to the promotion of architecture and the interests of architects.

From the standpoint of the individualist this may not be an ideal world in the sense that we can ensure the fulfilment of our own ideas without regard to the views of others, and it is probably a better world for that reason. That we have to make compromises before we can achieve objects in view is the experience of most of us. We have seen the formation in the Institute of two parties of able men in whose sincerity we must believe just as we believe in their desire to promote the interests of their profession and the body representing them. Both wish, we must suppose, to reach the same end, but they do not agree as to the methods.

The majority of the profession undoubtedly want Registration, and by means of the agreement we have apparently the only way of securing what we want. Can we, therefore, go back to the position we occupied before the Institute endorsed the demands of Registrationists? We believe the members of the Institute will agree that we cannot, and that they will support the agreement is our hope and belief.

Of the value of Registration we are not now speaking, but only of one clear and available means to that end. In our desire for the improvement and elevation of the professional status and the advancement of the art itself we should surely keep steadily in mind the goal at which we are aiming. Does anyone doubt that to some extent the welfare of the profession and the art is likely to be achieved by differing means? We all realise only too well that the highest achievements in art and the best pecuniary success are seldom to be found along the same pathway, and the old question of whether architecture is an art or a profession still remains. For the moment we are not discussing that question, and we can only hope that the move now being made will prove as beneficial to the profession as the promoters of Registration desire and more beneficial to the art of architecture than its opponents have feared.

NOTES.

How Not to Get Houses.

POLITICS have much to answer for, and we are sure Sir Ernest Benn is right when he blames the political fog for obscuring the housing problem. He believes Mr. Lambert (to whose letter we referred last week) to be entirely right in attributing the present anomalous position to the attempted use of politicians instead of builders as a source of supply for houses. Very emphatic and telling is the way in which Sir Ernest puts the matter. He says the next generation will understand that the way to get houses is to say "We don't want a house. Take it away, it is too dear, we can do better next door." The result will be as it always has been in every market in every age—we shall get an ever-increasing supply of what we want. The present position is destroying potential houses at the rate of hundreds a week. This will continue to an increasing degree so long as we think that houses can be built with votes. It is worth quoting a paragraph from Sir Ernest Benn's letter to the *Times* on Tuesday: "Can anyone deny that if the housing market had been as free as the market in books or newspapers, if the Statute Book had not been encumbered with the 390 Acts of Parliament which provide for the housing of the working-classes, if the enterprise which has been devoted to the making of books and newspapers had been turned on to houses, we would now be embarrassed with the choice of three parlours in which to sit, and a different size of bath for every size of baby?"

Payment by Results.

WHAT we have already emphasised is borne out by the pertinent question of Mr. E. D. Simon from the House of Commons, viz.: "Is the Government prepared to accept and to subsidise out of public funds for fifteen years a scheme based on about half the output per year that can be reasonably expected?" The estimate of the report of the National House Building Committee in the proposed housing scheme works out at less than three hundred bricks per day. Should a payment by results not be insisted on in return for subsidies which are to be given?

Northern Polytechnic Institute.

AN instance of the more humanistic influences penetrating the teaching of craftsmanship is seen in the very excellent examples shown at the Building Exhibition at the stand devoted to the work of pupils of this Institute. How directly good results may be reached where the pupil is left with freedom enough for his own aptitudes to find expression is noticeable in the carved stonework, of which there are various good examples. G. Rainbird (aged 16), one of the students, shows a small headstone which might serve as a model of what is desirable, being entirely delightful both in design and treatment, while there is the right feeling of rest and simplicity that befits its purpose. What a difference could our cemeteries be furnished with tombstones of not less becoming character! Other examples of incised lettering on stone are of good character and reflect much credit on the conduct of the Institute. The tendency now becoming general for the schools and institutes to promote this truer feeling in craftsmanship is of good augury for the future, for the truest craftsmanship is generally found to accompany the best feeling for design and they grow out of each other. The particular headstone to which we refer has a shaped head of agreeable proportions with a small wreath at its centre in relief and the inscription panel raised from the ground.

Lock, Old Chest in Church at E. Dereham, Norfolk.

Architecture Club Lectures.

PERHAPS another year the Architecture Club will give more encouragement to visitors to their exhibition to attend the lectures arranged in connection with it, and in so doing give more encouragement to their lecturers also. Except for an inconspicuous list slipped into the catalogue there seemed no announcement of time or subject of the lectures, and not until a hardy pioneer or two had penetrated the tenebrous silence of the lecture room were others induced to enter. A notice at the entrance concerning the lectures would not violate the dignity of Grosvenor House, and would doubtless affect the numbers attending.

"Modern Tendencies in Building."

PROFESSOR RICHARDSON, who gave the final lecture, is of course an enthusiast as well as a scholar. Moreover, he credited his too scanty audience with a certain amount of knowledge and interest, and (unlike a previous lecturer who assumed the existence of neither) added to both. He pointed out that the present tendency towards greater simplicity in buildings, domestic and otherwise, was partly gained by the discipline of enforced economy. Due acknowledgment was given to the Victorian architects without whose work modern English architecture could not have reached its present promising position.

Advertisements at Wembley.

THE shortsightedness of those in authority seems at last to have aroused public indignation. It is astounding that the Wembley authorities should have so little taste—so little sense of fitness—as even to consider the promiscuous use of the buildings as advertisement backgrounds. We understand that public opinion has had its effect, and that the firms concerned are being approached with a view to the removal of

Old Chest, Coyty Church, Glamorgan.

the disfiguring advertisements. We trust that every one of these firms will recognise that it is not good business to antagonise the public, and that those in control of the exhibition will take a much needed lesson to heart.

Proportion in Public Discussion.

THE subject of the London Bridges and the City Churches—of so much general interest—has led to much public discussion, but we notice a tendency to defeat its own object, that of reaching a right decision, when the exponents of different views have so often taken no pains to understand each other a little better before rushing into print. Architects, speaking with a divided voice and divulging the want of common ground between them, weaken the effect of what is said—the influence of their own counsels—through want of agreement among themselves. A further symptom which is not, we think, to the advantage of public discussion is the over statement which accompanies opposing points of view. When we are told to emphasise an argument that Waterloo Bridge is the finest bridge in the world, or when in defence of City Churches we extol their merit—which really needs no such special pleading—far beyond what can be reasonably granted about them, we weaken the cause we have at heart. While rightly asserting the historical and architectural worth of the City Churches, we ought not to forget that, though so good of their kind—it would be sheer vandalism to remove any of them—they have little yet of such quality as attaches to mediæval ecclesiastical building. Aspiration had developed into a prose of bourgeois security and convention which yields no such measure of beauty to the Puritan spirit as the freedom of earlier Gothic bestowed. And so with John Rennie's fine bridge, somewhat "dour" in its unconciliating bluntness, hardly touched by lightness or romance, which reflects this same later, more Puritan, spirit.

Sir John Soane.

AN admirable monograph of "The Works of Sir John Soane" has just been issued, and should form a very just and fair epitome of the distinguished architect's work. If his work did not afford any great impetus to the development of modern design, we can at least find a lesson of encouragement in his whole-hearted devotion to his profession, and a definite promotion of the study of refinement in architectural productions. No one has more thoroughly assimilated the knowledge of the man and his work than Mr. Arthur T. Bolton, who has produced this interesting and well-produced monograph, the result of the Soane Museum publications, and at the very moderate price of six shillings and sixpence.

Hanging Committees.

THE suggestion put forward by Mr. Hesketh Hubbard that there is room for improvement in the methods and choice of hanging committees, who being composed entirely of artists tend to narrow the choice to a rather restricted professional view, has much to be said for it. A certain kind of technical facility, often not at all the best—a facility that is often not faculty—may obscure the presence of other qualities in the minds of such committees, so that their action may encourage a somewhat low average rather than the best. The writer suggests that it would give more breadth to their decisions if such committees included those who were not artists, men of outside acquaintance with art, perhaps the connoisseur and the art critic; an influence more detached in its approach, to obviate the prejudices so often haunting the professional artist. Perhaps there would be fewer pictures painted—we hear of 10,000 being sent to the R.A.—if encouragement were not so much shown to a certain order of technical skill fostered through the schools, but of inferior rank as art. We think the suggestion for an infusion of new blood would lead to results beneficial to exhibitions and correct the rather contracted professional standard which encourages over production, and is a direct cause of the enormous quantity of pictures of no particular inwardness beyond a certain kind of technical assurance which it fosters. If committees were enlarged to include those who were not artists, the man of taste, &c., a new complexion would soon be manifest in the arts.

British Empire Exhibition Honours.

THOSE who have had an opportunity of seeing the lay-out of the British Empire Exhibition at Wembley, and the buildings which have sprung up on the site with such rapidity, will welcome the honour of Knighthood which the King has been pleased to confer on Mr. John W. Simpson, PP.R.I.B.A., who (with Mr. Maxwell Ayrton, F.R.I.B.A.) has acted as architect, and Mr. E. O. Williams, the engineer, as two of the most deserving honours announced for some time. Sir John Simpson and Sir Evan Williams are to be congratulated on having successfully carried out what is undoubtedly the biggest building scheme the world has ever seen, not only in an extraordinarily short space of time for a work of such magnitude, but in a material—reinforced concrete—which has not been previously used for such monumental buildings.

Panel on Old Chest at Coyty Church, Glam.

GENERAL NEWS

Professional Announcement.

Mr. Wilfrid L. Evershed, chartered quantity surveyor, has taken offices at 19, Buckingham-street, Adelphi, London, W.C.2.

Mr. Kenneth Glover, M.S.A., will be pleased to receive copies of catalogues and prices at 11, Saville Chambers, North-street, Newcastle-upon-Tyne.

Schools at North Heaton.

The Education Committee, subject to the necessary sanctions being obtained, has invited Mr. H. T. Wright, F.R.I.B.A., to accept the post of architect for the proposed secondary schools at Heaton.

Town-Planning Schemes.

This pamphlet* is badly needed. It includes a brief description of the general objects, scope, and contents of town-planning schemes under the Town-Planning Acts, 1909 to 1923, and of the procedure to be followed in preparing them. To define the ground covered we cannot do better than quote from the introduction :—"The preparation of a Town-Planning Scheme does not imply as is sometimes supposed an intention to cover the whole of the land in question with buildings, or to make a somewhat elaborate housing scheme, nor does it necessarily involve the local authority in immediate expenditure on works of any kind. Its object is to provide that development, if and when it takes place, shall be in accordance with a plan which has been prepared in the interests of the community as a whole, industrial and commercial as well as residential, land owners as well as tenants, and thus help to secure for the future, so far as reasonable foresight can do so, the welfare and prosperity of the district and its inhabitants. The plan should fix, in broad outline, the areas to be used for industry, business and residence, the principal roads and open spaces, the number of buildings to the acre, and similar matters."

Due stress is laid upon the importance of securing the good will of all the affected interests at the outset, and architectural and archæological societies are not overlooked. Town planning is so little understood and is so often confused with housing, building, and with other definite works that we hope this lucid and excellent pamphlet will be widely circulated.

Applied and Fine Arts Competition.

In the House of Commons last week, in answer to Mr. Birkett, who asked whether he would consider revivıng the national competition open to all the art schools in the country for applied and fine arts, which was suspended in 1916 as a measure of economy, Mr. Trevelyan, President of the Board of Education, said the form and scope of the national competition were under consideration before the war, and he was quite willing to review the matter in the light of present-day conditions.

Building Prices.

In its report for March the inter-departmental Committee of the Ministry of Health states since February an advance of 2s. per thousand in the price of bricks is reported from Willesden, and an advance of 5s. per thousand from Leeds, so that taking into account the increases referred to in the chairman's report for the month of February, advances in the price of bricks have been notified since January of this year from seven out of the twelve centres selected by the Committee.

There has been a further sharp rise in the price of lead, and sheet lead, for example, now stands at a figure, based on the average of the returns received, of approximately £48 per ton as against £36 in April, 1923.

* "Town Planning in England and Wales" (London: H.M. Stationery Office, Imperial House, Kingsway.) Price 4d.

COMPETITION NEWS

Holmside and South Moor Hospital.

The awards in connection with the architectural competition held by the welfare organisation of the Craghead and Holmside, and the South Moor Collieries, for designs for the erection of a cottage hospital between South Moor and Craghead, have now been made by Mr. T. R. Milburn, of Sunderland (who was appointed by the R.I.B.A. as assessor), and are :—

1.—(£75), Messrs. H. T. Buckland and Wm. Haywood, Birmingham.

2.—(£50), Messrs. Shannon & Son, Malton, Yorks.

3.—(£25), Graham R. Dawbarn, London.

The first premium carries with it the appointment as architects for the building, the estimated cost of which is £12,500. In all 77 designs were submitted.

The design placed first is given in this issue, and a review of the designs submitted appears on p. 669.

Monument to the Missing, La Ferte.

The assessor Sir Aston Webb, has given his award in this, the first competition organised by the Imperial War Graves Commission, to the design by Maior G. Hartley Goldsmith, M.C., A.R.I.B.A.

Essays on Concrete in Agriculture.

The following awards have been made by the Concrete Utilities Bureau, in this competition :—

Competition A (Students of Agricultural and Technical Schools).—1st prize, £20 : David T. Adam, Ladesford, Forfar, Scotland. 2nd, £10 : Alfred John Carter, Frost Barn Cottage, Purleigh. 3rd, £5 : Eric Arthur Poulter, 50, Acton-road, Bishops Stortford. Hon. Mentions, £1 each : Alexander Calder, St. Mathew Drive, Aberdeen ; Jas. Wm. Pestings, 164, Wednesfield-road, Wolverhampton ; John F. Wanhill, 16, Grosvenor-road, Muswell Hill, N.10 ; A. J. Dowrick, Higher Town, Truro ; Wm. S. Rogers, Queen's College, Cambridge.

Competition B (for all other than Students of Agricultural or Technical Schools).—1st prize, £20 : John Sanders Bray, F.S.I., 18, Cathedral-yard, Exeter. 2nd, £10 : Alex. A. Williamson, 55, St. Swithin-street, Aberdeen. 3rd, £5 : Capt. Wm. J. Pulford, Dorrington, Salop. Hon. Mentions, £1 each : Frank Hewitt, F.S.I., Council Offices, Kiveton Park, near Sheffield ; L. J. Pond, 5, Draper-avenue, Eccleston, near Chorley, Lancs ; P. E. Wilson, 30, Madeley-road, Ealing, W.5 ; D. N. Hardy, 49, Grosvenor-road, West Kensington, W.14 ; Edward Reddaway, The Orchards, Chalfont St. Peter's, Bucks.

Bridgeton, Glasgow.

The Corporation propose to offer four premiums, amounting in all to £375, to the architects whose designs are placed first, second, third and fourth in connection with the erection of halls at Bridgeton. Mr. James Lochhead, Hamilton, President of the Glasgow Institute of Architects, will act as assessor and adjudicate on the designs. The estimated cost of the buildings must not be in excess of £25,000.

Other Competitions.

Other competitions still open include the following (the dates given are, first the sending-in date, and second the issue of *The Builder* in which full particulars were given) :—Industrial Designs (June ; Dec. 21, 1923). Ross-Smith Memorial (Sept. 30 : Feb. 1). Glasgow Public Hall (July 4 ; April 11).

Books Received.

HANDBOOK No. 19, STRUCTURAL STEEL. (Messrs. R. A. Skelton & Co., Moorfields.) Price 5s. net.

SURVEYORS' TABLES AND DIARY. Revised and re-written by a Fellow of the Surveyors' Institution. (Messrs. Metchim & Son, 32, Clement's-lane, E.C. 4.) Price 2s. 6d.

PICKING AND PACKING APPLES.

A HARVEST SCENE.

Panels on the New Zealand Pavilion, British Empire Exhibition.

MR. A. R. FRASER, A.R.B.S., Sculptor. (*See p.* 673.)

SOUTH MOOR COTTAGE HOSPITAL COMPETITION

A CRITICISM BY AN ARCHITECT

SOUTH MOOR is a long, straggling street of miners' dwellings a Co-operative Store, Post Office, a large block of buildings consisting of colliery offices and manager's house, and an architectural monstrosity called a miners' hall. It is a village, typical of hundreds of others, situated in a most un-get-at-able spot in the heart of the Durham coalfields. One has only to go there by road, on the ubiquitous motor-'bus, to realise the necessity for a hospital more accessible than the Royal Victoria Infirmary, Newcastle-upon-Tyne.

I believe I started out in fairly good health, but by the time I arrived at South Moor the effect of Durham's A1 roads and no less A1 'buses was distinctly noticeable. What it must be like to a wounded man, or an ailing woman, in a motor ambulance on these A1 roads for two mortal hours one "trembles to think." On arrival I found the miners' hall locked up, and the custodian, a very obliging man, away to dinner, and no one seemed to know where he lived. Having come so far, however, and travelled in such comfort, I was not in the mood to be hampered by any small obstacles, so I climbed in through a window, much to the amusement of a crowd of small urchins, and the indignation of the worthy custodian when he eventually arrived.

On entering the miners' hall, where the drawings were more or less on view, one's first impression was of the immense waste of labour which has gone to the making of this perfect sea of drawings. There must have been 500 drawings at least, for a job estimated to cost £12,500. The impression created in the public mind by an exhibition of this kind must be one of utter bewilderment, that some 70 members of an honourable profession are willing to waste both time and money in a contest of skill, where the remuneration for the majority is nil, and for the winner a sum which will barely cover his standing charges and expenses. No wonder the public do not understand what an architect stands for, nor appreciate the amount of money and years of study that go to making him what he is.

Taken as a whole, the standard of excellence in the designs submitted in this competition is below the average, and there is very little that is new, or of particular interest to those who have made a special study of hospital planning. No. 68, by Messrs. H. T. Buckland & Haywood, of Birmingham, owe their success in no small measure to a really beautifully drawn and coloured perspective view, covered all over with little dots in varying colours, which must be a mystery to the uninitiated. The architecture of the fronts is disguised and the good grouping is emphasised in this drawing with consummate skill. It is quite the best drawing in the room. They have a simple, straightforward plan, andi their building is well placed on the site as regards levels. The wards are not disconnected from the administrative block, and they have solid floors with no ventilation under them—a somewhat drastic departure from hospital practice. Baths and w.c.'s have no aerial cut-off from wards, and no duty rooms adjoin the wards. Nurses' bedrooms are on first floor and access stair is from men's side and without supervision —a bold practice. The kitchen, 20 by 15, is none too big, and store and larder are inadequate. A laundry 19 by 10, and no washhouse or finishing room seems also inadequate.

The elevations are poor and suffer by comparison with the design placed second; the total cube of 210,112 is priced at 1s., at which figure it is very doubtful if this scheme could be carried out.

No. 42, by Messrs. Channon & Son, of Malton, Yorks, is very similar in plan to the first, but duty rooms are better placed. No cut-offs for baths, w.c.'s and sink rooms. The architecture is much better than the first, but the perspective view hardly does justice to it. The elevations are beautifully drawn, and very ably designed. Again, solid floors to wards and no ventilation. Total cube 186,842, priced at 1s. 3½d. It is difficult to see what has prevented this scheme being placed first.

No. 39, by Mr. G. R. Dawbarn, London, is a very able and well-grouped cottage hospital plan, surrounding a forecourt on the north. Operating, anæsthetic, X-ray and surgery are not so well-grouped and arranged as in the first two plans. The wards are a bit narrow at 22 ft, and 100 ft. super per bed is on the small side. The design is architecturally poor, and the perspective view quite inadequate. Priced mainly at 1s. 6d.

To come now to the "also ran." There are very many, and I have selected only a few which specially appealed to me. By the way, designs 1, 2 and 3 are, curiously enough, mounted neatly on strainers, while a great many are mounted on any old thing, or not mounted at all. It is sometimes important that an assessor should see one's drawings, and anything that will assist him in doing so is desirable. Another thing: one would have thought that the total cubic contents of a design might also be of interest to an assessor, yet, even in the winning design he has had to do an addition sum before he could arrive at it; and in many others I defy him to arrive at it at all, notably in Messrs. Brierley & Rutherford's scheme. If one is satisfied with the lowness of one's cube, one should have no mock modesty about stating it clearly.

No. 52, by Mr. W. N. Scaife, Newcastle-upon-Tyne. This is a fairly simple and straightforward scheme, a bit lacking in unbroken frontage lines. Bath, sink room and w.c. very well arranged, but not cut off as they should be. Duty rooms properly placed, nurses' block the best in the room, operating room, surgery, anæsthetic and X-ray rooms not well grouped. If this author will only appreciate the value of unbroken frontage lines, and, above all, simplicity of plan, the most difficult thing of all to attain, he will go far in competitive work. Mr. Scaife's architectural treatment is distinctly good, but lacking in simplicity and breadth of vision. His grouping is excellent. Total cube satisfactory; priced at 1s. 2d. This design was commended by the assessor.

No. 9, by Mr. George Hollins, of Newcastle, Staffs. This competitor has the distinction of being about the only one in the room to make any attempt to isolate his ward blocks from the administrative buildings. This I consider a serious defect in all three of the selected designs.

No. 51, by Mr. M. Wilson, of Stanley, Durham. All honour is due to Mr. Wilson for his work n this competition. His plan is excellent in many respects, and he has scored where the winners have failed. His sanitary annexes are cut off, wards well-arranged and of adequate size, kitchens cut off, as they should be. Architecturally he fails, and he should study simplicity of plan. He scores on his cube, 170,000 ft., priced partly at 1s. 6d. and partly at 1s. The rendering of his drawings has not helped his chances.

No. 71, by Messrs. Brierley & Rutherford, York. Simplicity of plan and unbroken outline are looked for in vain in this scheme, which is a little disappointing from such a source. The elevations are treated with quiet restraint, and the roofs are very obviously covered with pantiles. The plan is disappointing; the perspective does not help matters.

No. 73, by Mr. T. W. Sharpe, Dewsbury. This is a very fine scheme indeed, and it is difficult to see why it has been overlooked. The departmental planning is excellent. The kitchen and laundry blocks have been most carefully thought out, for the work to be done in them. Architecturally it is just what it should be, a cottage hospital. The perspective view is perhaps a bit too gorgeous, but when one had got over the shock of the brilliant landscape, and its more than brilliant rendering, it does show a well-designed hospital. So far as one can make out from the somewhat involved statement of cubic contents, they are all right, and I should have had great difficulty myself in getting past this scheme, on which the author is to be congratulated.

No. 7, by Messrs. Hays & Gray, of Durham. Rightly commended. Elevations infinitely superior to design placed first, and plan very able indeed. Cube rather high at 212,160.

No. 50, by Mr. J. A. Minty, London. Plan somewhat over-departmentalised. Too broken-up and unconvincing.

ARCHITECTURAL ACOUSTICS

MR. S. A. HURREN recently lectured at the Northern Polytechnic Institute on this subject. In the course of his remarks he said the most helpful method of gaining an insight into the science of acoustics was to visualise phenomena, and endeavour to understand the actual physical movements of the air during the propagation of fongitudinal sound-waves. To that end they must know something of the kinetic theory of gases, something perhaps that would be difficult to realise, but well worth the trial.

Taking the diaphragm of a gramophone sound box as a familiar vibrator, let them consider what happened when it moved inwards just once. The molecules of air lying immediately against the diaphragm were momentarily crowded together, or condensed. Now they were aware if someone in a crowded lift pushed them from behind, they unavoidably pushed the person in front of them. He, in his turn, pushed the man in front of him, and so on, right across the lift. This was exactly what happened to the air particles. The "push" was passed on, or in other words, energy was transferred. By the time that the initial "push" had travelled four feet, a diaphragm sounding "Middle C" must send out another one, and go on sending them out at regular intervals. By the end of one second it would have sent out 261 of these shocks, the first of which would have travelled 1,100 ft.

In the wireless broadcasting studio at Medford Hillside, the walls and ceiling had been covered with a half-inch layer of camel-hair padding, to give the lines of sound no chance of being strongly reflected. At Savoy Hill the studio had a thick green carpet, and the walls and ceiling were loosely draped with curtains. Beneath the curtains there are six layers of felt, set an inch apart on light framework. Nearly four tons of it were used in this way, reducing reverberation to a minimum. The result was a little disappointing to a singer, who felt that his voice had lost some of its power, but excess of reverberation would be far more distressing. The best materials for absorbing sound-waves, instead of reflecting them, such as felt, cork-dust or Cabot's quilting, were absorbent by reason of myriads of little air-pockets.

The late Wallace Clement Sabine of Harvard University made most thorough researches into the subject of reverberation, and came to the conclusion that quantitative measurement of the co-efficient of absorbency of all the materials presented in an auditorium rendered necessary the use of a standard unit of absorbency. A square metre of open-window space was chosen for the purpose. For experimental purposes Sabine used at first a Gemshorn organ pipe (C512), sounding it until the hall was full of tone, then suddenly cutting it off. The subsequent period during which the residual sound remained audible was measured by aid of the human ear and a delicate chronometer. The intensity of sound produced in the hall by the particular pipe employed was calculated to be a million times that of minimum audibility. From hundreds of prolonged and tedious experiments, Sabine found definite values for the co-efficient of absorbency of all common materials including the furnishings and the audience.

CORRESPONDENCE

The North Transept of Westminster Abbey.

SIR,—Professor Lethaby, in his article, "Westminster Abbey Re-examined," in your issue of March 7, refers to my paper published in the R.I.B.A. Journal of December 18, 1920.

I had hoped that he would on its publication have reviewed the conclusions arrived at in 1906, published in his interesting work, "Westminster Abbey and its Craftsmen." In this he condemns, in good round terms, the late John L. Pearson's restoration of the façade of the north transept on the grounds that it was not in accordance with the original design.

In 1882, as a candidate for the R.I.B.A. examination, I made a special study of the Abbey, and since then have taken a keen interest in everything relating to it. I had told my students in New Zealand that by means of study of old prints, documents, and careful examination of original stones, the restorers had given to us, as far as was possible, the beauty with which Henry III and his artificers had originally endowed it.

It came, therefore, as a shock when reading Professor Lethaby's book on arriving in England in 1920 to find that he held diametrically opposite views. A fresh review of available evidence suggested itself.

All the prints in the British Museum, the Guildhall, and R.I.B.A. Library, together with the Batsford and other collections, were examined, and a large number—I think 21—photographed and deposited in the R.I.B.A. Library for reference. Evidence remaining in the building was examined, and the result published in the Journal with a selection of the essential prints. Throughout the investigations I had the great advantage of consultation with Mr. A. D. Sharp, who had been Mr. Pearson's assistant in the work of restoration, and he kindly allowed me to inspect those original drawings which bore upon the subject.

The result led me to believe that the opinion to which Professor Lethaby committed himself in 1906 was open to question, and that on re-examination he would have reason to alter his views. But he tells us in his article of March 7 that "it is dreary work arguing again over conclusions which are denied," and brings forward instead a newly discovered Westminster School Seal as conclusive evidence that his previous contentions are right.

The seal is of such great interest that I hope you will publish an impress of it. But can it be regarded as reliable evidence as to the exact form of the original work? I think not; and Professor Lethaby himself thinks not when he considers the representation in it of the rose window. In reference to that he says, "Because of the small scale only about half of the number of the divisions were given in the tracery." Should we not, therefore, be justified in assuming that for the same reason only four arches are shown in the arcade under the rose window instead of five? This may or may not be, but it certainly cannot be claimed that the seal which is shown to be absolutely wrong in one particular is absolutely right in another.

Everyone will, of course, admit Professor Lethaby's contention that the north front of Westminster was based on the west front of Amiens, and corresponds with it in many parts. It was never a copy of it: the proportions of it are quite different.

I have no notes or references with me, but I hope that on my return to England you will permit me to lay before your readers the evidence gathered.

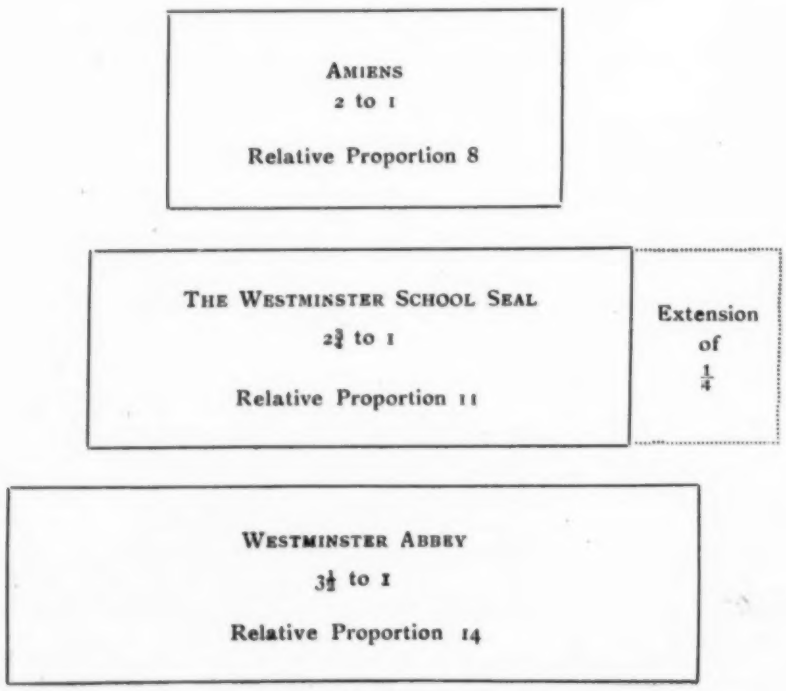
In the meantime I would point out that the proportion of the rectangle in which the arcading is placed at Amiens is 2 to 1, the width being twice the height; consequently each of the four arches that it contains has a height of double the width—a pleasing proportion.

The proportion of the rectangle at Westminster is 3½ to 1. The proportion on the seal is 2¾ to 1. The relative proportions thus being Amiens 8, the seal 11, Westminster Abbey 14. This extra height on the seal in relation to the width allows four arches to be represented in a more pleasing form than would be the case if the rectangle were shown correctly.

If the rectangle of the seal is extended so that the width is 3½ times the height it will be seen that the extension gives the exact space required for the fifth arch. The artist has given the correct proportion of the arches though the number of the openings is curtailed as in the rose. His endeavour naturally would be—not to make an exact representation of the façade but to produce rather an artistic impression of the reality.

It can easily be seen that the division of a rectangle of the proportion at Westminster into four would give an arch so squat and ill-proportioned that it would not have been tolerated by the original designers of the north front.

S. HURST SEAGER.



(See Letter by Mr. Hurst Seager).

The Institute and the Society.

SIR,—The particulars which appeared in the newspapers recently did not emanate from the Society or from anyone connected with it. You appear to have got hold of the wrong end of the stick on a question of procedure when you state that, if the proposals are finally passed by the Society, they will then be put before the general body of the R.I.B.A. The agreed procedure is exactly the opposite, and if the proposals are approved and ratified by the general body of the R.I.B.A. they will then be presented to the general body of the Society for consideration.

C. MCARTHUR BUTLER,
Secretary of the Society.

[***Mr. Butler is, of course, correct, but we were not aware of all the facts when we went to press.—ED.]

Thames Bridges.

SIR,—Southwark Bridge, it has been repeatedly remarked, is very little used. It has no adequate northern approach—Queen-street, which starts from the bridge, terminates in Cheapside; and King-street, which continues on, is too narrow to be of use.

If a road were constructed, commencing at the south end of Moorgate and terminating in Cheapside, opposite to the northern end of Queen-street, it would divert a good deal of the Moorgate traffic from the congested Princes-street, King William-street, London Bridge route, on to Southwark Bridge. London Bridge and its approach roads would be relieved and the suggested widening of Princes-street would not be necessary.

Some of the Bridge House Estate funds might, apparently, be more reasonably expended on the suggested road, as it is practically part of the completion of the bridge, rather than on the St. Paul's scheme which so many consider would be worse than useless.

W. J. H. LEVERTON.

Bradford Masonic Hall Competition.

SIR,—I am not aware how other competitors feel over the matter, but just before coming away on holiday I received a printed notification to the effect that the above matter has been suddenly withdrawn from public competition.

Considering the fact that I have already spent several weeks in working out a satisfactory plan and elevations on a somewhat cramped and difficult site, as I have no doubt others also have done, it comes somewhat as a shock to find that all one's energy and time is to be wasted in this manner, and implies a very unreasonable proceeding on the part of the promoters.

Under the circumstances it seems to me that the least they could do would be to grant a small honorarium of, say, two guineas, to each *bona fide* competitor by way of compensation, unless some satisfactory explanation is forthcoming, after issuing the invitation to compete. I am writing them to this effect and only hope the architectural societies will do something to put an end to this kind of thing.

ELFRIC H. SMITH.

Restoration of Ruins.

SIR,—The last four lines of the stanza, published in your last issue, should read:—

"Handle with reverence EACH crumbling stone,
Respect the very lichens o'er it grown,
And bid each ancient monument to stand
Supported E'EN as with a filial hand."

C. C. THOMPSON, F.R.I.B.A.

Future of Clopton Bridge.

Mr. Gosling, Minister of Transport, has consented to receive a deputation from the Stratford-on-Avon Borough Council on the question of the proposed widening of the historic Clopton Bridge. The matter has given rise to a good deal of public controversy. The interview is fixed for Tuesday, the 29th inst. The Council's representatives will be supported by the County Surveyor and other officials of the Warwickshire County Council who favour the scheme of the Borough Council.

QASR-EL-AINI HOSPITAL AND SCHOOL

BY AN ARCHITECT CONTRIBUTOR.

THE problem set before the competitors was by no means a simple one. Not only is the extent of the Hospital unusually large (1,270 beds with a daily attendance of 3,000 out-patients), but the special conditions, climatic and social, differentiate the planning from European methods in a marked degree. "On account of the powerful sun which compels the closing of the window openings exposed to direct rays by louvred shutters during the day-time, a northern aspect is the most desirable for living, sleeping and working rooms. Eastern rooms will be darkened by the closed shutters in the morning, and western rooms during the afternoon, unless protected by verandas." ("Note on local conditions," etc., supplied to competitors.)

As regards local customs, the rigid separation of the sexes is the dominating factor in the scheme. No communication for the public or the patients is permitted between the two sections; while inasmuch as certain important departments (*e.g.*, operation suites and out-patient department) must be used in common by both sexes, it will be seen that the difficulties are very considerable.

The conditions are very clearly drawn up and fully detailed, and the information supplied is as exhaustive as it well could be.

Twelve sets of designs were sent in, of which nine are exhibited at Conduit-street, the remaining three being by French architects.

The site is the northern end of Roda Island; and in shape is roughly triangular. It is divided into two parts by the Avenue de Roda, which crosses from east to west for about two-thirds of the width, then turns south; a small portion of the larger part of the site projects below the remainder southward. The rest of the site forms an isolated piece of land surrounded on all four sides by roads.

The winning design, by Messrs. C. Nicholas and Dixon-Spain, shows the whole of the ward blocks arranged on the west side, with one corridor of approach for both the male and hareem wards. The main entrance to the hospital is on the east, and to get this a large space of ground has been sacrificed to form a wide curved approach, with a roadway extending to the north to give access to the nurses' and sisters' homes. The ward blocks are designed apparently with a view to avoid rectangular rooms; the sanitary offices are placed in a projecting tower on one side of the ward, but neither in the centre nor at the extreme end, and for some reason not apparent the ward units are not aligned, the result being that one block partly obstructs the current of air between the two units. The operation suites are planned in curiously complicated groups of four blocks, two of which are set at an angle to the other two. The reason for this is not apparent, and the result inconvenient.

The design placed second, by Messrs. Lanchester, Rickards, Lucas and Lodge, shows the ward units placed on the east and west sides, with the corridors for access to the ward units roughly parallel to the river banks and enclosing a triangular space in which are placed the operation theatre suites, the central kitchen and stores, the administrative offices, and the resident and home officers' quarters. The out-patient department occupies the greater part of the projecting part of the site on the west side, and the isolated site is given over to the recreation ground and the Director's house. The plan is symmetrical and well thought out.

Design No. 10, by Messrs. Percy Adams and Holden.—A well devised plan, with the wards placed on the east and west sides, and with their major axes not quite so definitely east and west as those in the design placed second. The main entrance is in the Avenue de Roda, with the reception and casualty department, and the administrative offices balancing one another, and the out-patient closely adjoining. The latter is a compact, well-arranged unit; but the planning of the authelmintic department on the upper floor is not altogether satisfactory. The ward blocks are well planned, and the whole design shows a grasp of the subject and a knowledge of hospital planning.

Design No. 7, by Messrs. H. V. Ashley and Winton Newman, is, as regards the wards, planned very much on the lines of the last two designs, with the difference that the corridors giving access to the ward units are parallel instead of following the lines of the river banks. The effect of this is rather to curtail the space in the centre. The weak part of the design is the planning of the out-patient department, which is bent into the form, roughly, of an **L**. The reason of this seems to be the provision of an open courtyard between the blocks—a quite unnecessary and undesirable arrangement which increases the total length of the block by something like 100 ft. One result is that several of the blocks are lighted from the east and west. The medical school is placed on the south side of the Avenue de Roda, facing the main entrance to the hospital; and the students' hostel is placed at the south, with the sports ground intervening. On the east side of the isolated part of the site is the Director's house.

Design No. 11, by Messrs. Cackett and Burns Dick.—A well-arranged scheme, illustrated by a remarkably fine set of drawings. The wards are placed along each river front in a similar way to those in Messrs. Lanchester, Rickards, Lucas and Lodge's design, the male section being on the west and the hareem on the east. The sisters' and nurses' homes are at the north end of the Island, a position adopted by several of the competitors, and which seems, for many reasons, the most appropriate one. In the out-patient department the waiting courtyards for patients seem unduly curtailed by the authelmintic department, and the sanitary offices attached to the latter would have been better distributed in groups, so as to be easier of access.

Design No. 6, Mr. Vincent Harris.—In this plan the wards are planned on each side of a central double corridor, with dividing wall. This corridor runs approximately north and south, and the wards have their longer axis east and west. The ward blocks leave much to be desired in the way of planning; the interposition of the escape staircase and the sanitary offices between the ward and the veranda is a mistake, and the ward offices at the entrance end of the unit are not conveniently arranged.

Design No. 8, Messrs. W. & T. R. Milburn.—The general lay-out of this design is very different from any other. The wards are arranged in groups of two units united by a central block of ward offices; all wards run within a little of east and west. Near the apex of the site is a triangular building containing the sisters' and nurses' homes, with a large central courtyard. To the south of this are two ward blocks, each arranged as described above, and containing the whole of the hareem division of wards, with the infant welfare, extern work and nurses' lecture rooms on the ground floor. To the south of these are three separate blocks; in the centre the central pharmacy; to the east the central kitchens, dining rooms and steward's stores; and to the west the operation theatres block. South of these are four groups of wards containing the male units, two being on the east and two on the west, with the mosque occupying a central position. South of these are again three blocks; in the centre clinical instruction, to the east pathology, and to the west administration. On the same central axis, but on the south side of the Avenue de Roda, is the medical school. It will be seen that the whole of the buildings referred to above form an absolute symmetrical group. The outpatient department is entirely different from any other plan, being arranged round four sides of a large open courtyard. The object of thus planning this department is difficult to follow. The lighting on two of the sides must obviously be from the east and west, whereas all rooms should be lighted from the north, and the plan loses much in the matter of compactness as compared, for example, with that by Messrs. Percy Adams & Holden. With this exception, the scheme is well conceived and is attractive.

Design No. 5, Messrs. W. A. Pite, Son & Fairweather.—Here again we have a perfectly symmetrical plan, with ward units running east and west, the male section being to the east, the hareem to the west, and the centre space occupied by (from south to north) the reception and casualty block, main power station, steward and storekeeper and operation theatres. The main entrance is in the Avenue de Roda, on the central axis between the ward blocks. To the east of the entrance is the mortuary, with entrance from the Avenue de Roda, with the administration offices behind. On the west side, entered from outside, are the extern and infant welfare departments, and behind these the houses for sisters, nurses and probationers. The Director's house, medical school, the two blocks of isolation wards and the mosque (at the extreme north of the island) complete the buildings on this part of the site. The arrangement described above necessitated putting the out-patient department in the isolated part of the site to the south of the Avenue de Roda, and here comes in a grave question. In the "Notice to Competitors" in the Second (Final) stage of Competition the following words occur: "Any of the following sections of the hospital might be placed, at the discretion of the competitors, on the portion of the site to the south of the Avenue de Roda:—Division A (m), medical school; Division D, students' club and hostel; Division E, Director's house."

To direct that certain specific sections may be placed on a clearly defined part of the site must surely be taken to imply that no other sections are to be placed there. If this is so, and it is difficult to see any other meaning in the clause, the authors of this design have put themselves out of court by placing the out-patient department where it is clearly not meant to go. Apart from whether it was open to competitors to disregard the clause cited above, it must be conceded that the plan adopted by the authors of the design has many and obvious advantages, and that the objections that can be raised are of relatively minor importance. The fact, however, remains that apparently all the other competitors felt themselves bound by the limitation and planned accordingly. It is much to be regretted that competitors were not left a free hand in the matter. If this had been done there could have been no reason for refusing to this remarkably able plan the place to which it is justly entitled.

Design No. 4.—It is difficult to say anything in favour of this scheme, and criticism is rendered more difficult by the absence of a block plan. The wards are planned in the form of an **X** which has had its arms squeezed together, a form of which nothing can be said in its favour.

It will be noted that no detailed criticism has been made in the foregoing of the administrative offices or the medical school buildings; this has been done intentionally, first, because to deal exhaustively with these matters would have required many times the space available; and, secondly, because the scope for variation in these departments is not large, and, with possibly one or two exceptions, the various buildings referred to are planned with remarkable skill by all competitors. As regards architecture, only one of the designs shows no attempt at assimilating any distinctly Egyptian features. Messrs. Adams & Holden's design is the only one which is very distinctly Egyptian, and judging from the fine detail elevation shown it would have been a very striking building. Most of the other designs show a distinct Greek feeling; but simplicity seems to be the keynote of all, and the frequent occurrence of open colonnades gives ample opportunity for the play of light and shade.

[The first and second premiated designs in this competition, and designs No. 10, 7, 5, were given in *The Builder*, March 16—April 6, 1923.]

TENDERS AND VARIATIONS IN THE RATES OF WAGES

We have received from Mr. Max Clarke, F.R.I.B.A., the following communication:—

For some considerable time there has been "talk" amongst those who have to do with building, to the effect that the men engaged in the various trades wanted a rise of 2d. per hour; whether this applies to both skilled and unskilled labour, or whether it is suggested as an all-round increase on the present rates, I do not know, nor is it material to this note, but it is in the air, it is being pressed for, and some negotiations have taken place. An offer has been made by the employers and declined by the operatives, and so the matter stands. At the time I write all building work is faced with an increased cost, and just at the time when cheaper houses and more of them, with labour-saving appliances, better built, and fit for heroes, are on the lips of those who want a "cry."

All this being so, the individual who stands between the employer and the workmen, to wit, the contractor, fears that he may suffer if he enters into a firm contract and the long-talked-of rise of wages becomes an agreed fact before the completion of his contract, and, like a wise person, he desires to transfer his responsibility on to the shoulders of the employer. The latter, poor man, knowing nothing about the matter one way or another, is rather surprised if he wants to build a house, or anything else, that he cannot, according to the proposed régime, get a fixed price for what he wants, but things being as they are he is either content to pay, or makes up his mind to go without, what is perhaps his pet scheme, shall we say, for his comfort, the advancement of his business or the good of the public in general. So it comes about that architects, when they receive tenders for work, find a little slip printed in red to the following effect:—

> "This tender is based upon the present standard rate of wages and is subject to adjustment in the event of any variation in such rates"

neatly stuck in a prominent position on the form of tender. It is one of the war products, this neat little slip, and who can say but that it has come to stay. If so it is the duty of every architect to give it his attention and provide for such an event as a rise or fall of wages in any contract for the production of which the architect is responsible.

For those who have not had any experience of dealing with the rise and fall of wages in a contract I suggest the following course should be pursued.

(1) The specification should contain a clause that the contractor is to furnish the architect weekly, when required, with copies of the weekly wages book or sheets, showing the number of men employed, the trade of each, the number of hours worked by each, and the rate of wages paid; this must apply to shop work and to sub-contractors, if the latter have given estimates to which the red slips are attached. It will be the duty of the architect to check, or have checked, the returns mentioned above, and if dealt with weekly no very great trouble will arise, but if left until the completion, when much is forgotten, contentious matters arise which are difficult at times to settle.

(2) Having got a satisfactory clause in the specification it is necessary to have some clause in the contract between the parties setting out clearly how the matter shall be dealt with. So many disputes on matters connected with building could be avoided if the rights and conditions between the parties were made clear beforehand.

The following clause as an addition to the R.I.B.A., 1909, form of contract is suggested.

"How Rise and Fall of Wages are to be dealt with.

"If between the date of delivery of the contractor's tender and the date for completion of the works comprised in the contract, alterations in the rates of wages of the trades engaged in carrying out this contract or any sub-contracts thereunder shall be agreed upon by the National Wages and Conditions Council for the Building Industry, such alterations shall be made and given effect to in the wages paid to workmen employed on this contract or sub-contracts, and the sum payable in respect of the works comprised in the contract or sub-contracts shall be proportionately increased or decreased, as the case may be, to cover the aforesaid alterations in wages, but on the basis that any adjustment of the contract price due to such increase, or decrease, in the wages paid as compared with those ruling at the date of delivery of the tender shall be a net addition or deduction, as the case may be, without any increase or decrease of profit by reason of such alterations in wages.

"This does not include anyone employed at a weekly wage or on 'shifts.'

"Alterations in the price of materials not to apply to this contract."

Following this in the form of contract there must be a schedule of the rates of wages paid to the various operatives at the date the tender is sent in, and it is advisable that the wages of such persons as scaffolder, lorry man, machinist, improver, and shop boy, not to mention others, should be included in the list, which will serve as a basic rate if alterations should occur and have to be dealt with.

All the rates of wages inserted in the schedule must be the agreed rates for the particular district, not any "fancy" rates paid by the contractor. It will be noted that the clause proposed to be a part of the contract document contains three conditions which must be clearly borne in mind.

(*a*) That it is only an alteration of wages agreed by the National Wages and Conditions Council for the Building Industry which shall affect the contract. (*b*) That the date on which alterations of wages ceases is the date given in the contract for the completion of the contract. (*c*) That wages paid weekly or by "shift" (usually the way a watchman is paid) do not come under the rise and fall of wages clause, as their wages are not calculated by the hour. (*d*) That alterations in the prices of materials do not apply to the contract.

Architects generally are not in favour of any contract which makes the final cost an unknown amount, so are averse to the pink slips now sent out under the instructions of the several associations to which many builders belong, and it may be to the advantage of some builders not to adopt the delicate little attention intimating the rise and fall, but so long as architects *must* deal with the matter, it is very desirable that they should consider the above suggestions and try to adopt some universal practice throughout the profession.

INSIDE A MILKING-SHED.

A BUSH-FELLING SCENE.

Panels on the New Zealand Pavilion, British Empire Exhibition.

MR. A R. FRASER, A.R.B.S., Sculptor. (*See p.* 673.)

DROVER AND FLOCK.

SHEARERS AT WORK.

SCULPTURE AND COMMERCE

Now that advertising forms such an important part of industrial affairs, it is, perhaps, a compensation to the public that Royal Academicians and increasing numbers of competent painters are directing their talents towards commerce. There is no technical difficulty in accomplishing this transition. It is rather different, however, for the sculptor to use his art for the benefit of commerce. Yet something of this sort has been done in the excellent plaques which surmount the New Zealand Pavilion at the British Empire Exhibition. A small army of art students have been let loose among the buildings at Wembley, and are using their brushes to some purpose in purely decorative schemes, but on the New Zealand Pavilion alone has any attempt been made to use the sculptor's art to portray commercial activity—in this particular case the principal primary industries of the country.

The New Zealand sculptor (Mr. A. R. Fraser, A.R.B.S.), whose work has appeared on several occasions in the Royal Academy, had less than a fortnight to devote to each of the plaques and the decorative spandrils, but from the photographs here reproduced it will be seen he has done full justice to the subjects treated. Each of the six panels are about eight feet square, and duplicate sets are placed between the cornice and "the string" on each wing of the building, and equidistant from the main door, over which are decorative spandrils. Even from fifty yards away the life-size figures may be seen to advantage, and when the sun shines the lights and shadows on the statuary produce a particularly striking effect.

In some of the panels there has necessarily been an effort to get a complete idea into the limited space, but apart from this licence, the scenes are wonderfully realistic and are obviously done by an artist who is personally acquainted with all the details of the scenes he has represented.

LEFT-HAND SPANDRIL.

RIGHT-HAND SPANDRIL.

Panels on the New Zealand Pavilion, British Empire Exhibition. MR. A. R. FRASER, A.R.B.S., Sculptor.

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ILLUSTRATIONS

Holmside and South Moor Cottage Hospital Competition.

We give this week the design placed first in the Holmside and South Moor Cottage Hospital Competition, by Messrs. Buckland & Haywood, FF.R.I.B.A. A review of the designs submitted is given on p. 669.

New Premises for the Manchester & County Bank, Ltd.

The new premises at Hollingworth, which are situated on the main road, are built of brick and terra-cotta. The terra-cotta was supplied by the Hathern Station Brick & Terra-Cotta Co. The facing bricks on the side elevation are rustic bricks, supplied by the Ravenhead Brick Co. The building is roofed with reinforced concrete supplied by the Combined Concrete Construction Co., Manchester. The general contractors were Messrs. Edwin Marshall & Son, of Ashton-under-Lyne, and the fittings were also made by this firm. The locks and furniture were supplied by Messrs. Leggotts, of Bradford; lead glazing by Charles Lightfoot, Manchester; steel casements by Henry Hope & Son, Birmingham.

The Bank at Whitefield is being erected at the apex of forked roads immediately outside Whitefield Station. The apex forms the natural position of a rather important terminal feature, and the domed end of the bank has been designed as this feature, as far as a small building can fill the need. The building will be of Portland stone. The general contractors are Messrs. E. Marshall, of Ashton-under-Lyne; masons, Messrs. F. M. & H. Nuttall, Whitefield; concrete work, Combined Concrete Construction Co., Manchester.

Messrs. Mills & Murgatroyd (Mr. A. J. Murgatroyd, F.S.Arc., and Mr. J. Hembrow, A.R.I.B.A.) are the architects for both banks.

New Town Hall and Municipal Offices, Colombo.

We give this week a reproduction of a photograph of a three-sixteenth scale model of the New Town Hall and Municipal Offices, Colombo. The model was made of Ceylon wood by a Singalese carpenter under the direction of Mr. S. J. Edwards, A.R.I.B.A. (of Messrs. Booty & Edwards, Singapore, Penang and Colombo, architects).

The accepted design, by Mr. S. J. Edwards, M.A., A.R.I.B.A., was illustrated in our issue of January 26, 1923. The building is now being constructed departmentally by the Colombo Municipality. The model is to be exhibited in the Ceylon pavilion at the British Empire Exhibition.

From the American *Architect*.

North Ward National Bank, Newark, New Jersey.

MESSRS. GUILBERT & BETELLE, Architects; MR. THOMAS BRUCE BOYD, Engineer to the Bank. (*See p.* 675.)

Decorative Window Glass.

The values which may be obtained from the use of coloured glass without any addition of painted work, or only what might be necessary where figures are introduced, was very graphically illustrated by the exhibition of Mr. Leonard Walker's fine decorative glass windows, which were shown by Mr. Selfridge's courtesy, at the great stores in Oxford-street last week. Mr. Walker has not studied glass design for many years for nothing, and his command of effects by well applied forms and colours was tellingly exhibited by these beautiful windows, intercepted for our pleasure here before their despatch to Singapore. The windows are a portion of a series for the banking hall of the new premises of the Hong Kong & Shanghai Banking Corporation, Singapore, the architects for which are Messrs. Swan & MacLaren. The scheme of colour is rich and dark in view of its situation in a strong eastern light, and the result is a remarkably brilliant and jewel-like effect softened by the recurrent notes of blurred colour in the general groundwork of the windows. The work shows strikingly the value of good glass work in producing beautiful permanent pictures of colour and light such as are denied to any other material. When we get work of this quality, which is harmonious in colour and good in form, we may well take pleasure in its permanence, and it is to be hoped that we shall find many of our modern commercial structures enriched by windows like these for the Hong Kong Bank.

Bungalow at Potter Heigham, Norfolk.

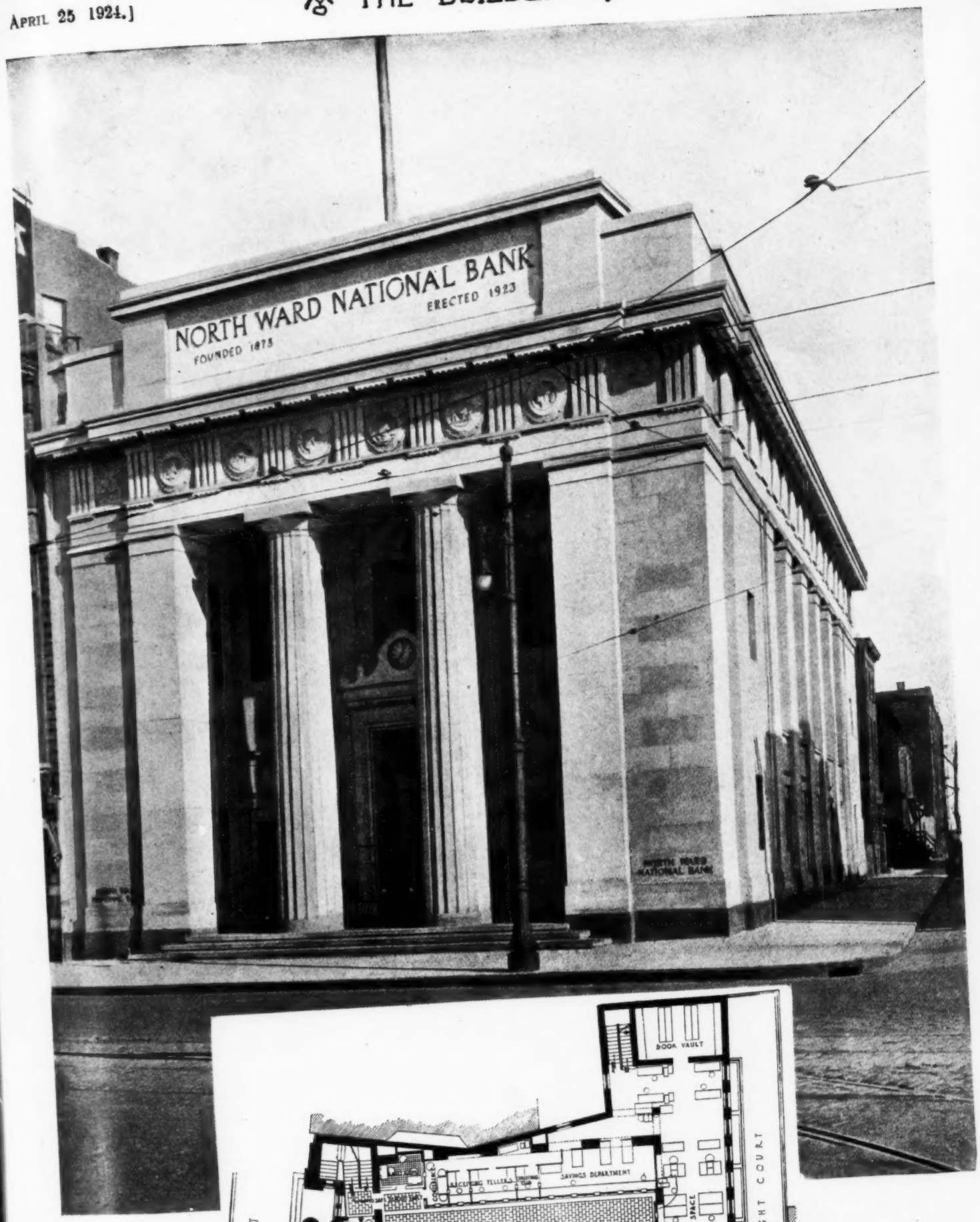
This bungalow is intended for summer occupation only, and is in the nature of a temporary building. There is neither gas, water, nor drainage to the site. The site was prepared for building by excavating to a depth of 4 ft. over the whole, and filling with 3 ft. of clinker. The portion built on is covered with 6 in. concrete; the top soil being replaced on the rest of the site. The structure is a timber-framed building, and rests on brick piers, allowing clear air space underneath. Externally it is weather boarded, the architectural effect being obtained by means of tar, paint, stains, and the use of wood trellis. The roof covering is "Ruberoid." The accommodation includes living room, with glass folding screen, giving access to the veranda; a small kitchen (the cooking will be done on an oil stove); three small bedrooms (fitted with two bunks each, having lockers, cupboards, wash-hand stand, dressing table as fixtures). The object throughout has been to reduce the amount of furniture required to a minimum. Boat house and garage are also included.

The architects are Messrs. Percy Tubbs, Son & Duncan.

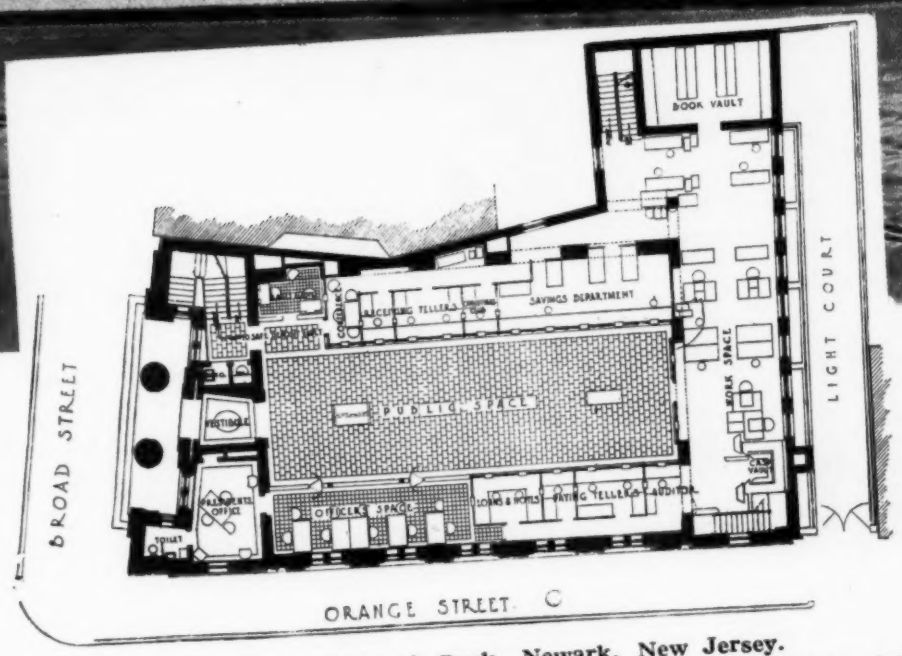
British Institution Scholarship, 1923.

The subject of the British Institution Scholarship in Architecture for 1923 was a bank building in a country town. The site given was an irregular one, the east front facing a Market-square, and the south-east fronting a residential street. The requirements included a residence for the bank manager, and a banking hall, approximately 40 ft. sq.

The Scholarship was awarded to Mr. Frank Chippindale, of the Leeds School of Art, who had previously won the Walker Art Scholarship (value £20 for five years tenable at the Leeds School of Architecture); Leeds and West Yorkshire Architectural Society's Silver Medal and five guineas for Measured Drawings; Travelling Scholarship, value £60, awarded jointly by the Leeds and West Yorkshire Architectural Society and the Leeds Education Authority.



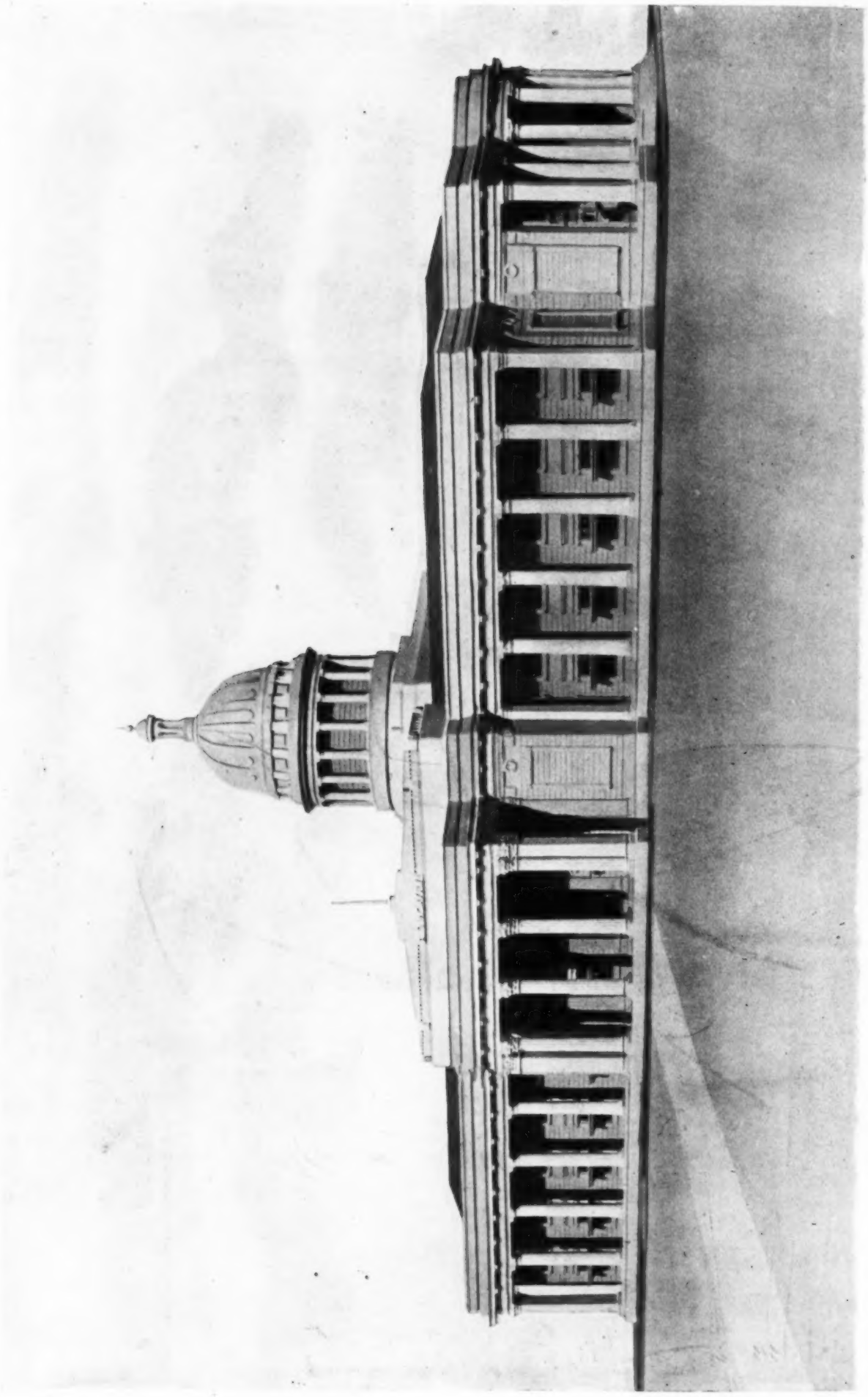
From the *American Architect*



North Ward National Bank, Newark, New Jersey.

Messrs. Guilbert & Betelle, Architects; Mr. Thomas Bruce Boyd, Engineer to the Bank

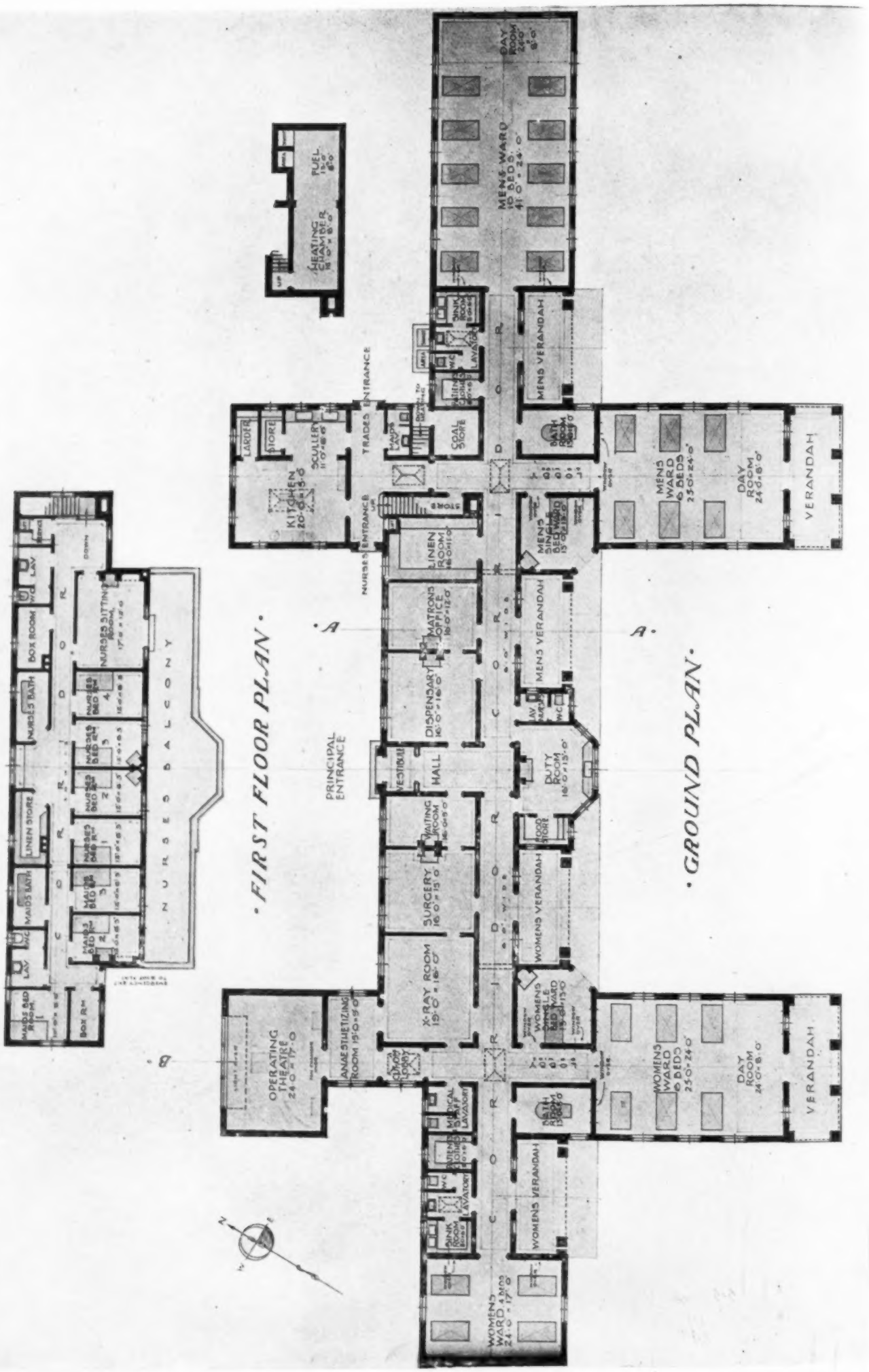
[This building was awarded First Prize by the Broad Street Association of Newark, New Jersey, as the best building erected on Broad Street during 1923.]



New Town Hall and Municipal Buildings, Colombo.

MR. S. J. EDWARDS, M.A., A.R.I.B.A., Architect. (*See p. 674.*)

UNIV. OF MICH.



Holmside and South Moor Cottage Hospital Competition. Design placed first: By MESSRS. BUCKLAND & HAYWOOD, FF.R.I.B.A.

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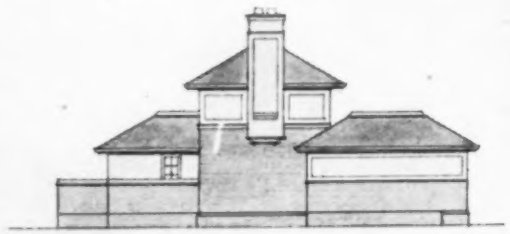
·FRONT ELEVATION·

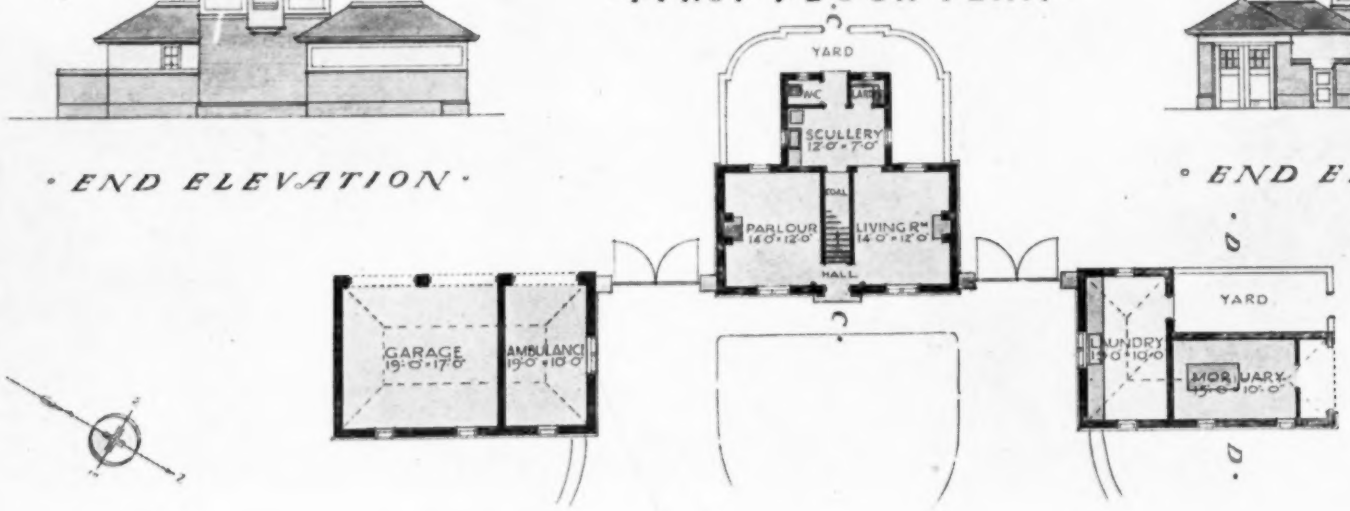
·BACK ELEVATION·

·SECTION·C·C·



·END ELEVATION·

·FIRST FLOOR PLAN·



·GROUND PLAN·

·SECTION·D·D·

·END ELEVATION·

Holmside and South Moor Cottage Hospital Competition. Design placed first: By MESSRS. BUCKLAND & HAYWOOD, FF.R.I.B.A.

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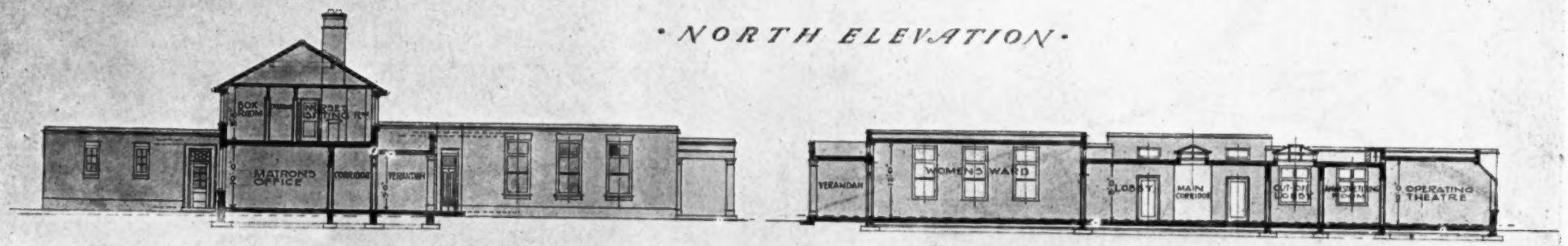
PROPOSED COTTAGE HOSPITAL.

Holmside and South Moor Cottage Hospital Competition. Design placed first: By Messrs. Buckland & Haywood, FF.R.I.B.A.

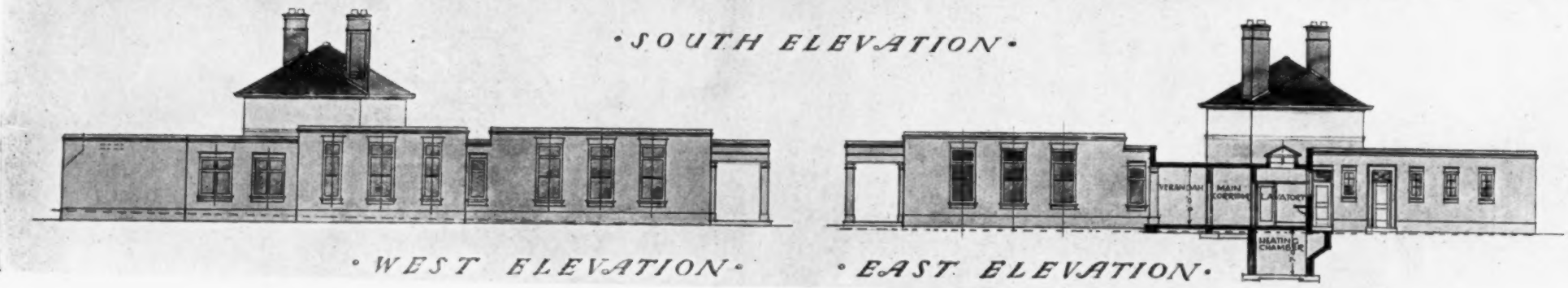
·NORTH ELEVATION·



·SECTION·A·A·

·SECTION·B·B·

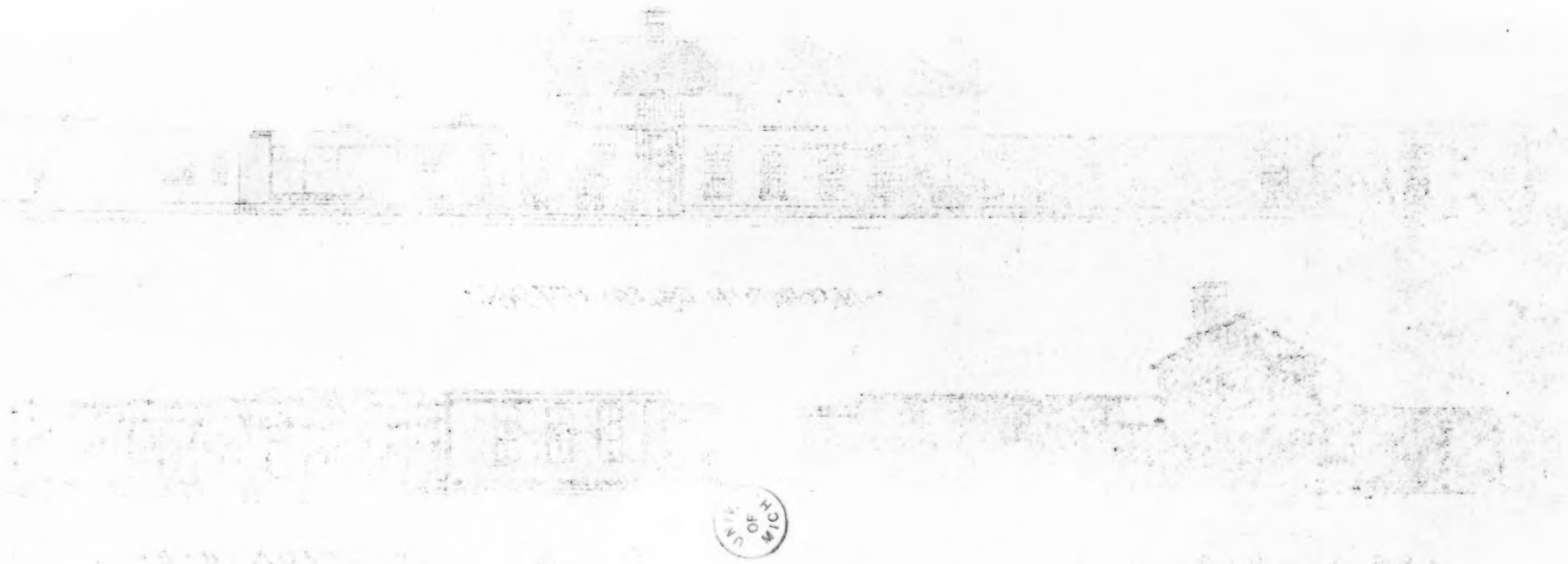
·SOUTH ELEVATION·

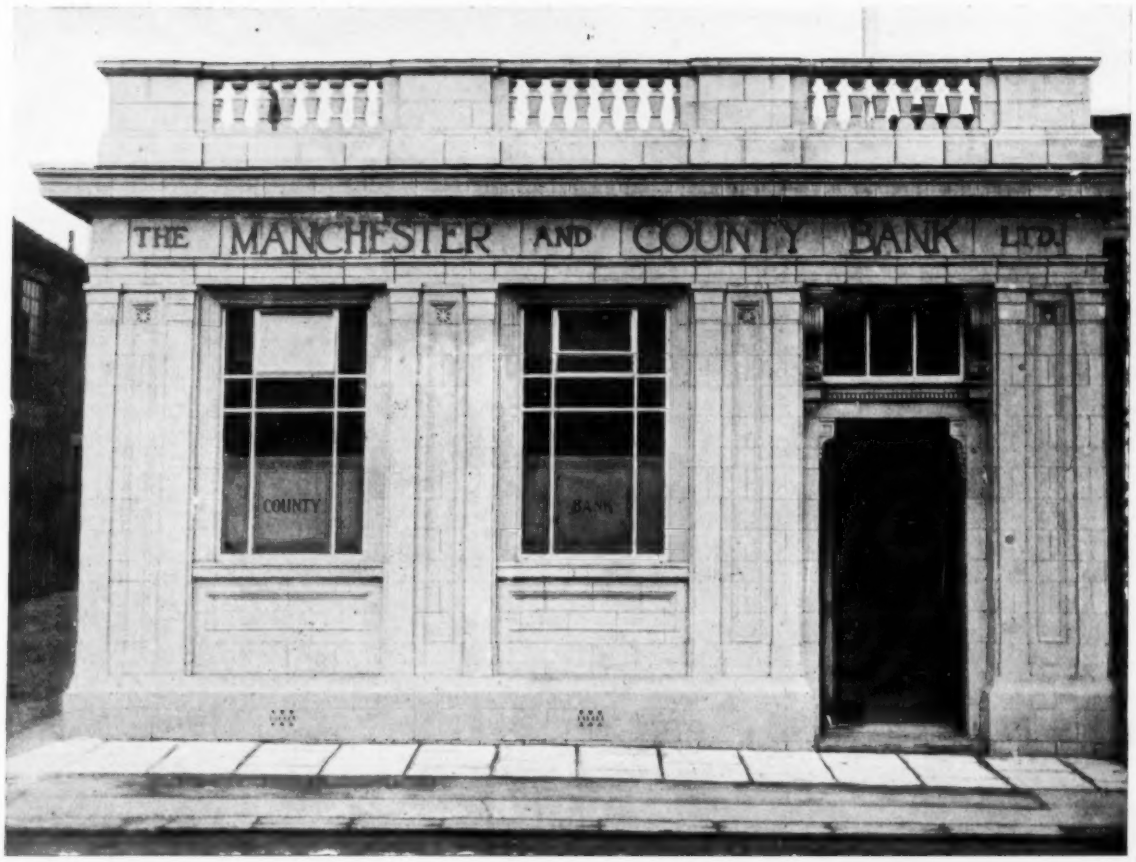


·WEST ELEVATION·

·EAST ELEVATION·

Holmside and South Moor Cottage Hospital Competition: Design placed first: By Messrs. Buckland & Haywood FF R.I.B.A.

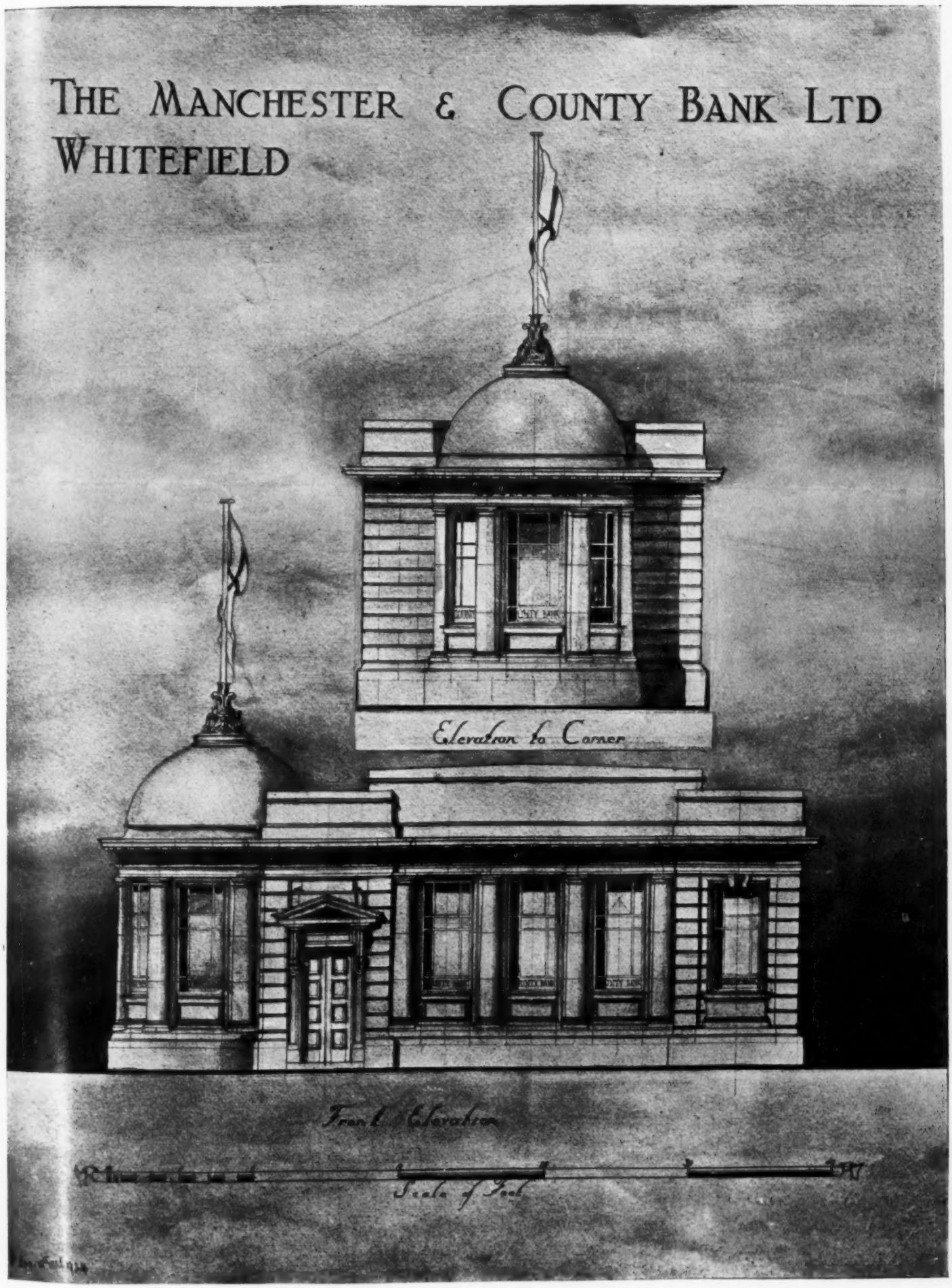




New Premises of the Manchester and County Bank, Ltd., Hollingworth.

Messrs. Mills & Murgatroyd (Mr. A. J. Murgatroyd, F.S.Arc., and Mr. J. Hembrow, A.R.I.B.A.), Architects.

UNIV OF MICH



New Premises of the Manchester and County Bank, Ltd., Whitefield.

MESSRS. MILLS & MURGATROYD (MR. A. J. MURGATROYD, F.S.Arc., and MR. J. HEMBROW, A.R.I.B.A.), Architects.

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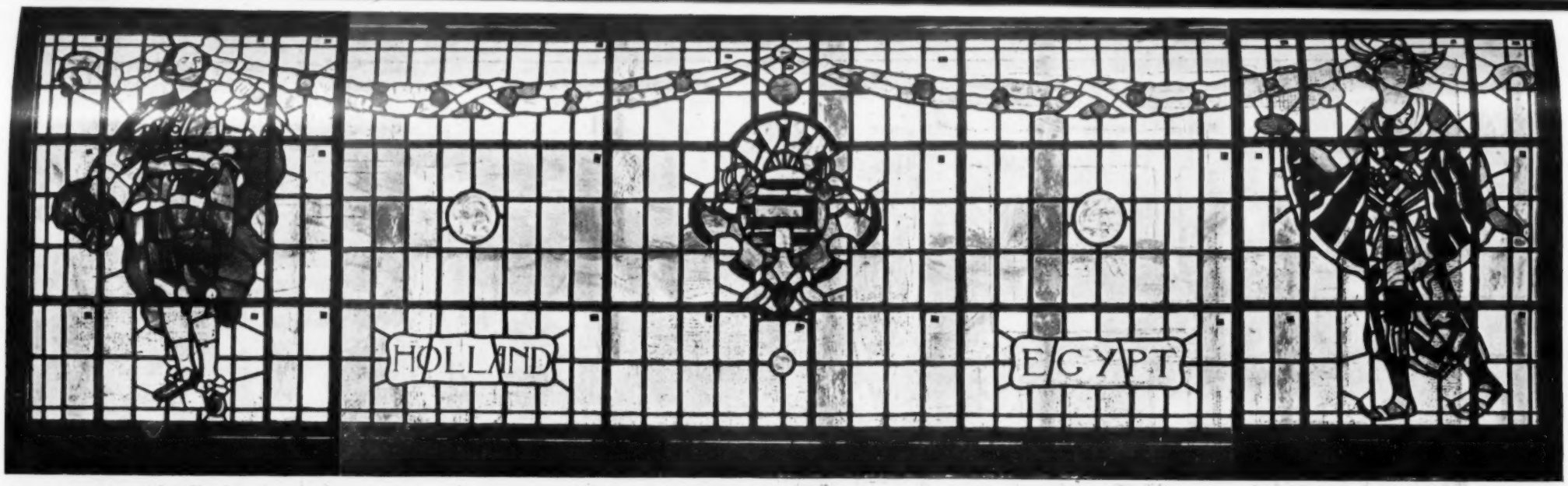
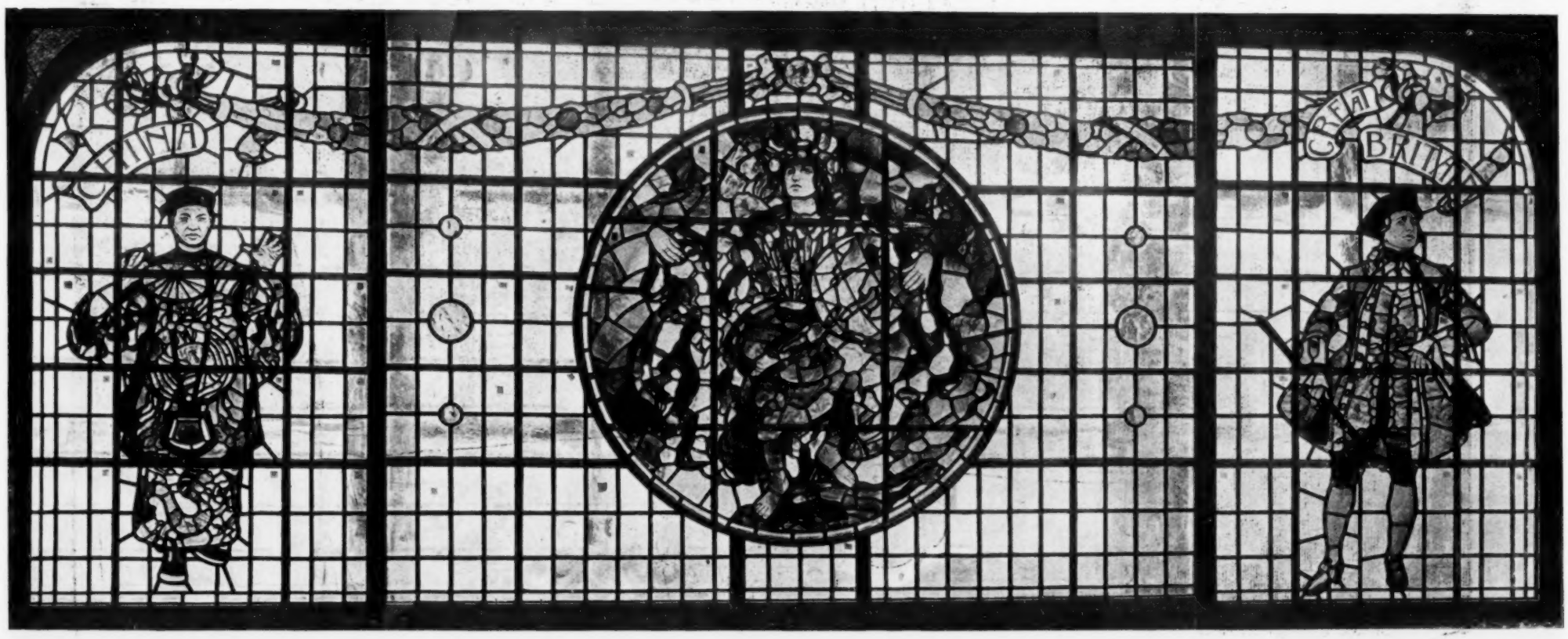
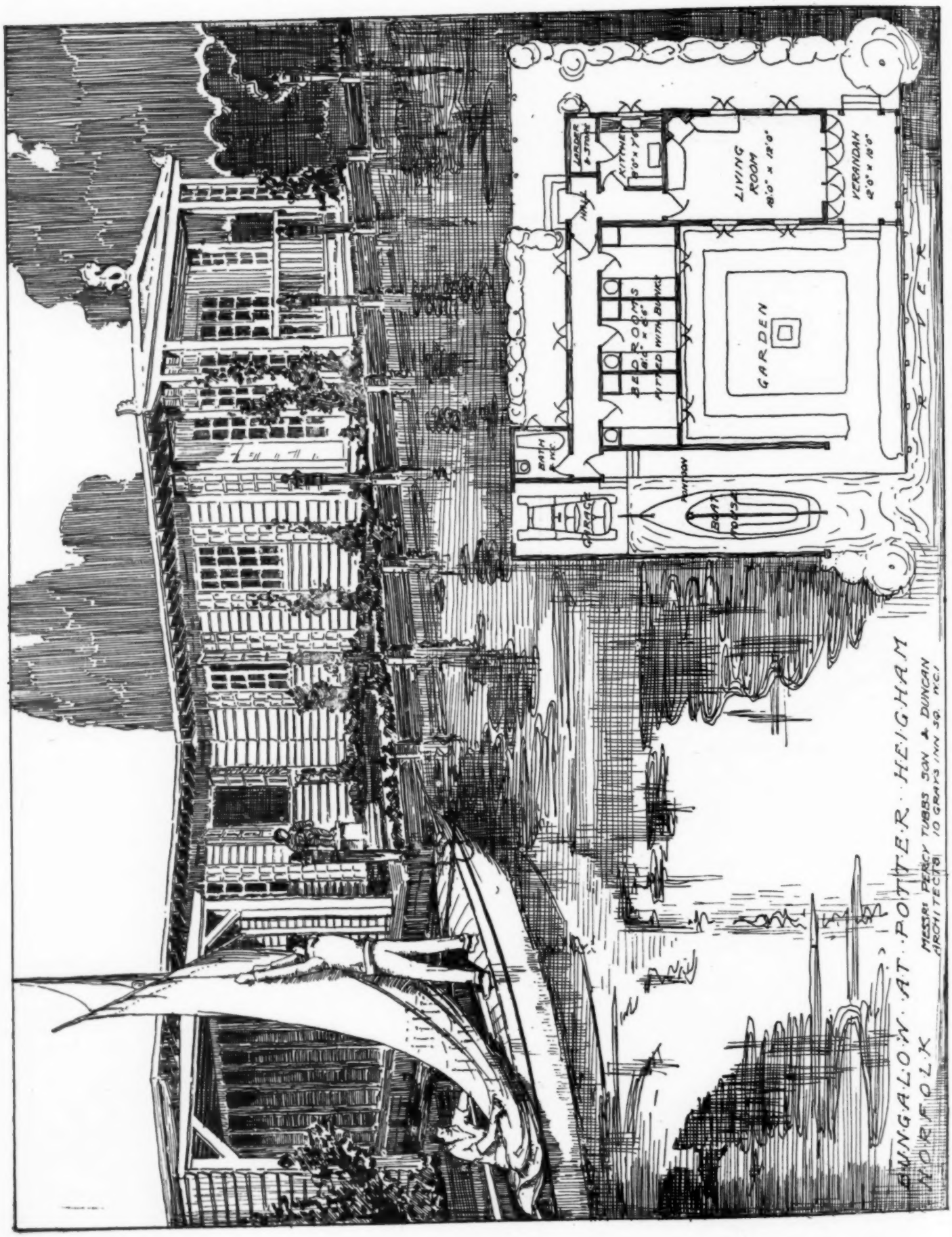
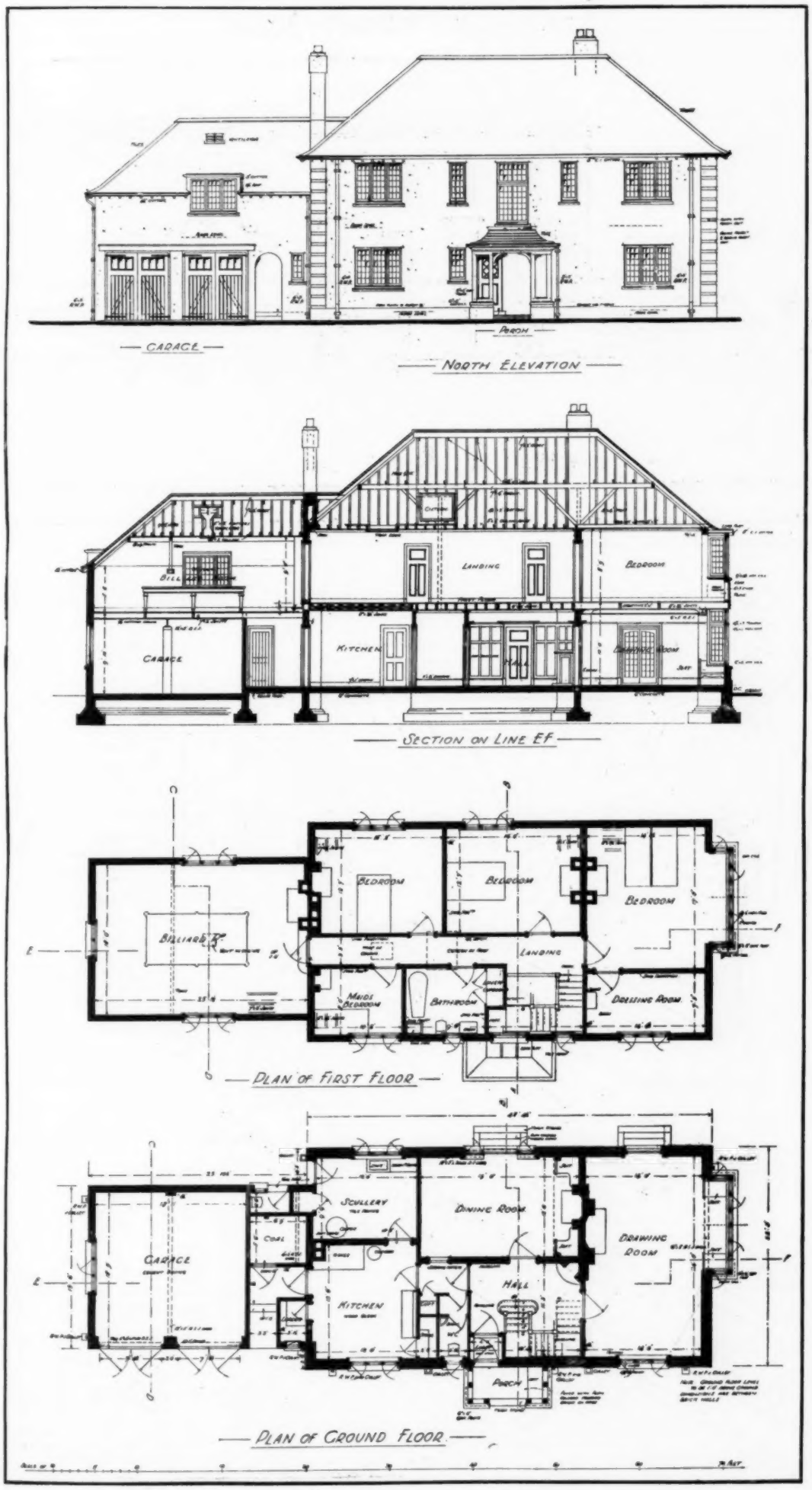




Stained Glass for the Hong Kong and Shanghai Banking Corporation, Singapore. By MR. LEONARD WALKER, R.I. MESSRS. SWAN & MACLAREN, Architects. (*See p.* 674.)



Bungalow at Potter Heigham, Norfolk. MESSRS PERCY TUBBS, SON & DUNCAN, Architects. (See p. 671)

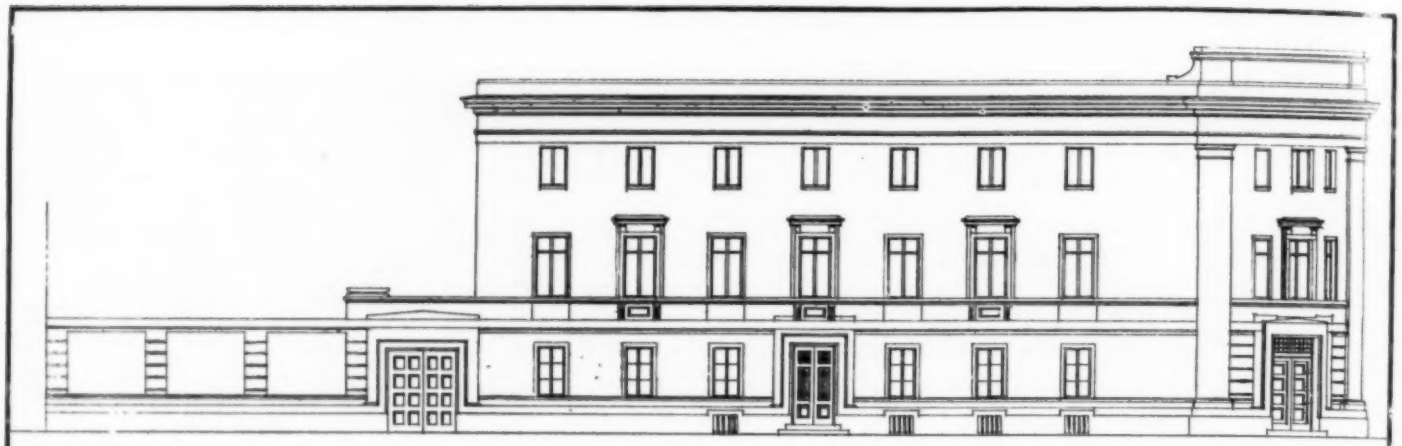


House at Harlow Bush Common. MR. H. W. COUCHMAN, A.R.I.B.A., Architect.

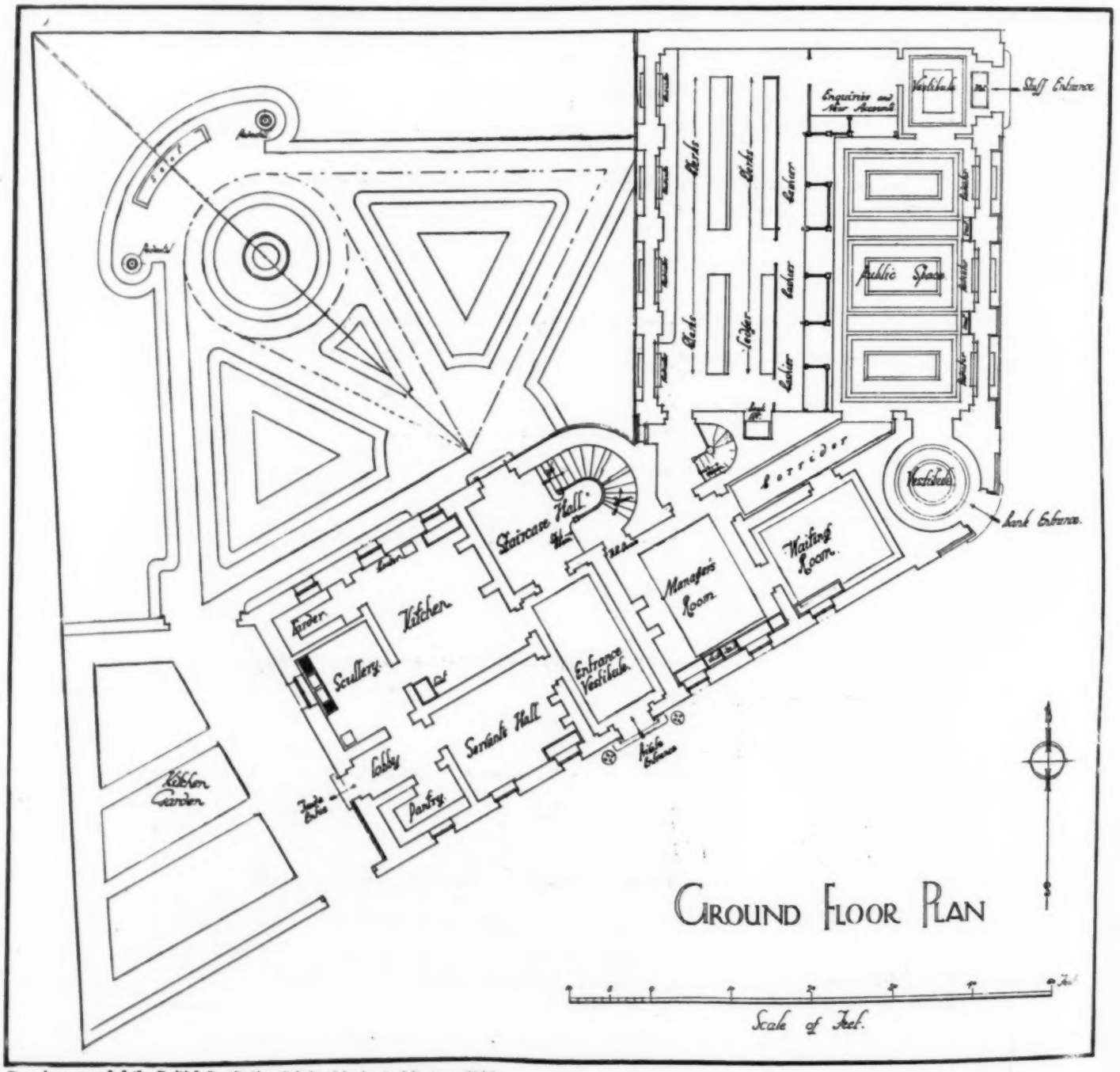
[The walls are built of Fletton bricks roughcasted, with plum-coloured brick quoins; plum-coloured Broseley tiles were used for the roofs. The staircase and wall panellings are in oak, and the wood mantelpieces and other fittings were to special design. Mr. Albert Monk, of Edmonton, was the contractor.]

Bungalow at Potter Heigham, Norfolk. MESSRS PERCY TUBBS, SON & DUNCAN, Architects. (See p. 671)

ELEVATION TO MARKET SQUARE.



ELEVATION TO RESIDENTIAL STREET.



Drawings awarded the British Institution Scholarship in Architecture, 1923.

Design for a Bank Building in a Country Town.

By MR. F. CHIPPINDALE, LEEDS SCHOOL OF ART. *(See p. 674.)*

PRESENT-DAY ARCHITECTURE

On April 17, Professor A. E. Richardson lectured before the Architecture Club on this subject. In the course of his remarks he said in order to understand the building ideals now in vogue it was necessary to focus attention on the movement which had its beginnings fifty years since.

Opinion was gradually inclining to the view that Victorian art of the last thirty years of the nineteenth century was not entirely barren of results. By the year 1870 at least three coteries of architects representing the talent of the country were in opposition. There were the Gothicists, who fought to re-establish the direct statement of mediæval building; there were the Classicists, who sought to keep alive the diminishing flame of classicism; there were the free lances whose aim it was to develop a modern style from the debris of the national tradition.

It was in this year (1870) that the Gothic revival reached its point of culmination, although for thirty years onwards its spirit was continued. Sir Gilbert Scott was completing St. Pancras Station, and what teaching there was in the Architectural Schools, at the Royal Academy and University College, as well as the lectures delivered by Ruskin in various parts of the country, had a definite bias towards mediæval art and craftsmanship. On the other hand the Classic spirit was by no means dead, as is evidenced by many buildings now extant in the City of London and other cities and towns in the provinces. London at this date still preserved a ring of country within five miles of Charing Cross, as yet unsullied by suburban migration and the spoliation of rural amenities. Apart from the architects towered the gigantic figures of Ruskin and William Morris, aloof from the strife and indignant at the non-acceptance of their teachings by practitioners and public alike. It was curious, and not a little pathetic in the light of present day events, to glance back fifty years to note the keenness and the enthusiasm, the wordy warfare, and the not altogether ill results. Men were then alive who were young when the eighteenth century spirit was in its last flush; some had imbibed the traditions of Nash and Cockerell, others had been disciples of Rickman and Pugin. There were in addition the civil engineers, now completely dissociated from the architect; engineers of an earlier period, who, not thoroughly understanding their business sought to combine derived architectural form with adventure in steel.

In architectural circles the desire seemed to have been to attempt novelty by the eclectic method, but it was significant that both architects and engineers failed to appreciate the political significance of the unprecedented growth of industry. In other words the whole of the artistic effort of the country appeared to have been concentrated on the task of masking industrial expression in the vain attempt to excuse it and teach it deportment. John Ruskin and William Morris, together with their immediate followers, alone realised the political significance of art; they fought for an immediate revolution of taste, a thing impossible of itself; yet all unknowingly the leaven was at work, and it was a tribute to the memory of these advanced thinkers that nearly all of their lessons had been taken to heart, but not quite in the way they imagined.

It was an age both sentimental and sincere; it was adventurous in the sense that its enthusiasts dared to compete with past masterpieces; it was literary in the sense that investigation of what could be readily studied in historical building formed part of every architect's training. They were to-day sufficiently in advance of that time to read its tale with some measure of accuracy. The good buildings were very good, the vernacular was respectable but depressing. The architecture in other words exactly expressed the age.

It was a little difficult to locate the beginnings of the modern movement, but there was sufficient evidence at Saffron Walden in Essex for them to assume that by the year 1874 a distinct adventure had been made by a group of talented architects. In the Market-place of this town civic enterprise had determined on building a new town hall, William Burgess being chosen for the work; at the same time John Bentley was commissioned to design the fountain, and it was left to Eden Nesfield to remodel the "Rose and Crown" hostelry and to design the adjoining bank. Considering the period the result was remarkable. Burgess endeavoured to recast the local timber tradition; Nesfield essayed a free treatment of Tudor and Renaissance for the bank, and made his additions to the "Rose and Crown" in a sort of florescent version of Queen Anne. Bentley was content to produce an elaborate Gothic fountain sprayed with ideas. Soon after the dominating personality of Norman Shaw appeared in London, and the tide of fashion turned to a resuscitated version of Queen Anne brickwork.

To recount the subsequent events would require many lectures; they would have to listen to a list of buildings and to the names of many architects who had long since left the stage to newer groups. It was important to remember, however, that the prevailing tendency was style, and that the well-defined paths of Gothic and Classic were at this juncture forsaken for the broad highway where freedom was encouraged. Side by side with the new movement the Gothic revival entered upon its last phase. There were the churches designed by Pearson and Brooks, the Record Office in Chancery-lane by Pennethorne. the man who had sat at the feet of Nash and had completed Somerset House, and the restoration—dreadful word—of innumerable churches throughout the Kingdom. On the Classic side, such fine buildings as the Royal College of Science and the Royal Albert Hall, both at Kensington, showed that on occasion real buildings of monumental stamp could be evolved.

For the next twenty years the vernacular took on a certain consistency in its higher flights. Norman Shaw assumed the leadership among the adventurers. Bedford Park came into being as the first of the new urban districts as distinct from the spiky productions of the speculative builders of the eighties, and among the more cultured of the people taste for domestic work of character was influenced by the drawings of Kate Greenaway and the wares produced by the Morris firm. As was inevitable, the speculative builder who trod close on the heels of the leaders did his best to ape their style.

As was inevitable, when any particular style or styles formed the theme, both architects and the public soon began to tire of the repetition of familiar features which proved the limitations of the styles selected. The time was ripe for a change, and this was brought about by the erudition of Sir Reginald Blomfield, who published his authoritative work on the English Renaissance in 1896. Henceforward all and sundry combined to re-establish the English manner of the late seventeenth and eighteenth centuries, there was an immediate response to the newer teaching, and a consequent outcrop of buildings in Portland stone as well as in brick. The period of criticism and research set in, every known source was investigated, and drawings were made of about every historical work which could claim distinction. The French exhibition of 1900 gave further impetus to the broadened Classic view point; and for a time English architecture came under the spell of the Beaux Arts. America had not yet fully developed her official style. From the year 1900 the character of London began to change; improvements were projected between Holborn and the Strand; it was determined at this time to rebuild Regent-street; the great improvement of the Mall was schemed and carried to completion; and in the West-End of London blocks of flats displaced groups of old town houses. From 1900 to 1910 ensued what might well be termed the "Competition Period," important municipal buildings being undertaken in all parts of the country. This, too, was the period for the building of medium-sized town and country mansions. There were, for example, the homely designs of the late Ernest Newton, the dignified Renaissance houses by Sir Reginald Blomfield, and the extraordinary number of unique houses by Sir Edwin Lutyens. It could be said of the period from 1900 to 1914 that English domestic architecture, thanks to the labours of the foregoing and other architects, was raised to the proud position it occupied at the present time. But the attention given to domestic architecture which contributed to its success was not entirely bestowed on works of civic importance, perhaps on account of the competition system, as well as the fact that until quite recently the value of sane building as a commercial asset was not understood by those interested in commerce.

It seemed incredible that scarcely twenty years since the apathy of the public towards the conventional scenery of cities was profound. Architectural education, too, was woefully neglected save for the privileged few who had studied at the Ecole des Beaux Arts in Paris, or at the Schools of the Royal Academy. It was, however, of moment to note that the leaders who laid the foundations of the present-day work had all benefited by the traditional system of pupilage, in itself a legacy of the eighteenth century, and it was entirely owing to the labours of those men that the present advanced system of education was in being. The present generation of architects had had the benefit of closer contact with other countries, there had been waves of ideas and reactions of thought from France and America.

Architecture was always responsive to events of political significance. From 1900 to 1914 it developed on certain well-defined lines with tendencies towards classical purity and excellence of technique in an ascending scale, to which it was helped by the prodigious output of books on architecture and the kindred arts as well as the growing appreciation of the scientific art on the part of the public. The American invasion of England began with the building of Selfridges; it had, it was to be hoped, reached its climax in the new Bush Building. Education had assisted in the teaching of archæology and history, it had proven the story of the past and made clear many traits and surface differences. The whole theory of planning had undergone revision, while the general practitioner was giving way to the man who specialised in definite types of building.

Reverting to present-day tendencies which it would be seen were the result of fifty years of slow and painful building up, they were confronted with the main issues of the times. The war completely disturbed the trend of events which, up to 1914, had been slowly developing on lines of intensive scholarship. The exigencies of war put architecture temporarily in the background, the demand being for direct and rapid construction pre-eminently for building associated with the production of munitions. Under such circumstances a lasting architectural expression was impossible. On the other hand, from the conditions of war was created a situation of political significance, namely, industrial housing on a great scale. Thanks to pre-war lessons, it had been possible for the younger generation of architects and even borough engineers to apply theories formerly thought only applicable to domestic works of the first rank, to the building of small houses, either in groups of two or in terrace formation. He submitted that domestic architecture of this type, with few exceptions, was truly representative of the time, and was remarkable for good taste in its expression as well as for ingenuity of planning.

A little thought would convince them that they had no reason to be ashamed of the work produced to-day; it was the result of much labour and the slow building up of a definite standard of taste to which all and sundry had contributed. Criticism had been keen and censure has been lavished without regard to conditions, for it was difficult for a critic to select the correct view point.

LEGAL SECTION

NOTES ON CURRENT CASES

Workmen's Compensation.

"Out of and in the Course of Employment."

THE decision of the House of Lords in the case St. Helen's Colliery Co. *v.* Hewitson (1924, A.C. 59), is one of the most important delivered in recent years and it requires to be studied in detail.

We gave a brief outline of this case in our issue December 7, but at that time only one of the judgments was reported and it was impossible to analyse the effect of all the opinions delivered in the House of Lords, but we now propose to give a detailed consideration to those judgments for they to some extent explain the law and they overrule some decided cases.

Shortly stated, the facts were that a man employed at the appellant's mine who resided some four miles from his work was injured by a railway accident on October 10, 1921, whilst travelling to his work.

He was in this train under agreement or license by his employers. The employers had entered into an agreement with the railway company to provide special trains for the conveyance of their workman to and from their work at a monthly charge made to the employers, and the employers had agreed to indemnify the railway company against any claims made by their workmen in respect of accident, injury or loss. The workmen who used these trains had to sign a form agreeing not to make any claim against the railway company, and when they had signed this form presented by the employers they received a pass enabling them to use the trains, and a sum of 1s. 8d. was deducted from their wages for the fare, which was considerably less than an ordinary workman's ticket. The men were not paid for the time occupied in travelling, and it was optional whether they should use the trains to reach their work or choose some other means of transport. Some, in fact, walked and others went by omnibus.

The House of Lords (reversing the Court of Appeal) held that as there was no obligation to use the train, the injury sustained by the workman did not arise "in the course of" the employment. Lord Shaw of Dunfermline alone dissented from this decision, which was arrived at by the other four Law Lords.

It is somewhat surprising that no satisfactory test has yet been devised which will give a definite rule for the interpretation of the expression "personal injury by accident arising out of and in the course of the employment," although this expression has been in use in connection with Workmen's Compensation some 27 years.

Lord Atkinson is reported as saying that the difficulties of reconciling the decided cases on this question has arisen from the omission on the part of some of the Courts to frame some test which must be satisfied to bring an accident within the course of the employment, and in the judgments delivered in the House of Lords certain tests are now suggested.

Before considering these tests we will first note the ground upon which the majority of the House of Lords held this accident not to have arisen "in the course of" the employment.

The Court of Appeal had decided in the man's favour on the authority of Cremens *v.* Guest, Keen & Nettlefolds (1908, 1 K.B. 469; *The Builder*, July 4, 1908), although it was found difficult to reconcile that decision with Davies *v.* Rhymney Iron Co. (2 B.W.C.C. 22).

The House of Lords has now distinguished these two cases. In the latter of the two cases it was optional whether the man should use a train offered for his convenience, and it was held that the accident did not arise out of and in the course of the employment, but in Cremens case the findings were not certain and it was not clear whether the train formed the only access to the man's place of work or whether he used it only as of right, or it was obligatory upon him to use it, and the House has now laid it down definitely that if there is only a right and no obligation to use a means of access or transport the mere license does not make the man availing himself of it acting "within the course of his employment" within the meaning of the Act, unless of course, that is the only means of access by which a workman can reach his place of work and in that sense he is compelled to use it.

Lord Atkinson suggested a test as to when a man is acting "in the course of" his employment, namely, when he is doing something in discharge of a duty to his employer directly or indirectly imposed upon him by his contract of service, but in giving this definition he added that it must be borne in mind that the word "employment" as here used includes things belonging to or arising out of it. Lord Atkinson approved the decision given by Lord Parker in Parker *v.* Owners of ship *Black Rock* (1915 A.C. 725) that in order to make an accident arise "out of" the employment it must have been done in pursuance of a duty owed to the employer, and he pointed out that the same test applied as to whether it arose in "the course of" the employment, following with approval the dictum to this effect laid down by Lord Finlay in Davidson *v.* McRobb (1918 A.C. 314; *The Builder*, August 2, 1918), that the word "employment" must mean the same thing when in apposition with "in the course of" as it means when in apposition with "out of."

Lord Wrenbury said that the words "out of" connote origin, and the words "in the course of" apply to the employment as such, its nature, conditions, obligations, and incidents, and the words "in the course of" are not equivalent to "during." More helpful than these general definitions may be some of the examples cited from other cases or given by themselves by the members of the House of Lords in this case.

Lord Dunedin, in Davidson *v.* McRobb (*ubi sup*) said: "It is obvious that the addition of the words 'in the course of' are meant in some way to qualify or further explain the words 'out of.' My own view is that they do the latter. It is in one sense difficult to imagine that there could be any injury held as arising out of the employment which would not also be in the course of the employment. But it may be well that the determination of the question whether at the moment of injury the workman was 'in the course of' his employment may go to solve the question whether the injury arose 'out of' the employment. Let me instance the case of a domestic servant who is run over in the street. Given but the two facts that the man is, *e.g.*, a butler and that he is run over in the street, you would not be able to decide whether the injury arose out of the employment or not, but given the further fact that either (1) he had been sent by his master on a message, or (2) that he is enjoying an evening out, then you can determine whether he is in the course of his employment or not, and from that, if being run over is an inherent danger of the streets, you will be able to determine whether the injury arose out of the employment or not."

Lord Wrenbury, in the case we are considering said that a useful test in many cases is to consider whether at the moment of accident the employer would have been entitled to give the man an order, and the man would have owed the duty to obey it.

Where a workman is injured whilst engaged in performing the actual work he is engaged to do, there can be no difficulty in determining that the accident has arisen both "out of" and "in the course of" the employment, but then, as we have shown above in Lord Atkinson's definition of the test, the word "employment" covers and includes things incidental to the employment. Lord Atkinson instanced several such incidents: haymakers going a short distance to get water to drink to enable them to continue their work, and workmen taking their food on the employers' premises. Lord Wrenbury gave other instances: men going down to work in a cage, or standing by for the next job; and he adds in every case the facts have to be ascertained and discrimination made between the time during which, or the place at which, the employment is being carried on, and those during or at which it is not being carried on.

It is these incidental acts which cause the difficulty, and Lord Wrenbury pointed out that the definition given in Gane *v.* Norton Colliery Co. (1909 2 K.B. 539; *The Builder*, July 10, 1909), "all those things that he is entitled to do by virtue of his contract, he is for the purposes of the Act employed to do, and they are therefore within his contract of employment" is far too wide for as he points out a man by virtue of his contract may be entitled to take a holiday, or he may be entitled to take vegetables from his employer's garden, but he is not entitled to the benefit of the Act when he is on his holiday or when engaged in digging potatoes for his own use.

Lord Wrenbury says the definition should run "all those things that in the course of his employment he is entitled to do by virtue of his contract he is for the purposes of the Act employed to do."

It appears, therefore, from the judgments in this case that the real test as to whether the accident has arisen both "out of and in the course of" the employment is, has the accident arisen from the man's performing a duty to his employer? Lord Wrenbury pointed out that does not mean that it was the man's duty to perform an act, but it is sufficient if the man is doing his duty at the moment. An example of this may be furnished by the case, Upton *v.* Great Central Railway, a case in the House of Lords, which we noted January 25 (now reported 1924, A.C. 302). In that case a man was returning from work by train, it being part of his employment to proceed to his place of work and return from it by train, and he slipped on the platform and sustained injury, and it was held he was entitled to compensation, and it was laid down that there must be some causal connection, not necessarily physical connection, between the accident and the circumstances the workman had to encounter within the scope of his employment. This may be put in other words that the workman when he sustained injury was performing a duty to his employer.

Perhaps one of the most difficult cases to bring into line with the present decision is that of the House of Lords in Redfern *v.* Armstrong Whitworth (1920, A.C. 577), a case we commented upon in our issues April 16 and October 29, 1920, where a woman who had gone to a canteen provided by the employers and which it was optional for her to use, whilst hurrying back to work slipped on the stairs, and the majority in the House of Lords held she was within the Act. Lords Finlay and Dunedin, however, dissented from that judgment, and Lord Atkinson appears to suggest that perhaps the test now accepted was not applied by two of the Law Lords forming the majority, but that in any case it does not weaken the test as laid down in Parker *v.* ship *Black Rock*, and now applied.

It is to be noted that Lord Shaw of Dunfermline, who dissented from the rest of the House in the case we are considering, practically agreed with the general principles laid down, but based his opinion on the fact that the whole of the arrangements with the workman as regards transit by the railway company formed part of his contract of service, and thus the transit was directly connected with his employment, and he strengthened his argument by reference to the Truck Act. The case is certainly one of

hardship, for the man was deprived of any remedy against the railway company by reason of his agreement with his employers and yet left without his right to compensation from his employers, and there is much to be said for the view that if a man gives up his right, as one of the public, against the carrying company that makes the transit part of his contract of employment, but so far as the general principles we have been endeavouring to explain are concerned, Lord Shaw's judgment practically accepts them, but he differed on the construction of the particular contract.

Mortgagee and Mortgagor.

We may draw attention to an unusual case, Fothergill *v.* See, briefly reported in *The Times*, December 20.

The plaintiff in the action held a mortgage on a house from the Rev. H. C. Kinred, and by the mortgage deed it was provided that the powers of leasing conferred upon the mortgagor by section 18 of the Conveyancing Act, 1881, should not be exercised without the previous consent in writing of the mortgagee except in the case of a letting for any term not exceeding three years, a provision similar to that contained in the lease in the case of Roberts *v.* Enlayde, which we recently noted. The mortgagor had however granted a lease of the premises to the defendant in this action for a term of seven years at a rent of £50 per annum, six years' rent being paid in advance, The mortgagor who was in arrears with his payments of interest on the mortgage had left the country and this action was brought against his tenant for trespass and a declaration that the lease was void *ab initio* as against the plaintiff, the mortgagee.

For the defendant it was contended that though the lease was bad as it stood there was an equitable jurisdiction in the Court to alter the term of the lease so as to bring it within the clause in the mortgagee deed, *i.e.*, a lease for three years, but the Court held that the express provision in the mortgage deed as to leasing made the case come under the rule of law which prevailed before the Conveyancing was passed, that is, that it was contrary to law for a mortgagor to grant a lease without the consent of the mortgagee and therefore following the case Bishop of Bangor *v.* Parry (1891, 2 Q.B. 277), the lease was absolutely void, and a declaration was made to that effect, and 40s. damages for trespass were awarded as against the defendant.

THE RATING OF LAND VALUES.

A Bill has been introduced by Sir John Simon and read a first time, dealing with the rating of land values, and in introducing his Bill, Sir John Simon referred to the old argument that the value of land was due not to the efforts of the individual or his expenditure, but to the activities and expenditure of the community, and he claimed that his Bill would stimulate rebuilding.

We have not the terms of this Bill before us, but the party to which Sir John Simon belongs placed the taxation of land values before the electors at the last election, and the two subjects are closely connected.

We imagined that the fallacy of this unearned increment had been exposed in actual practice under the Finance Acts, 1909-10, and that the disastrous effects it had exerted on building, even before the war, were now recognised by all parties, but the first reading of this Bill was passed by 244 votes to 119.

It is hardly necessary for us to declare that in these columns we take no party views on any subject, but we foretold the result of land taxation before it was put in practice, and it would be very disastrous to the already hampered building trade were this principle again attempted to be enforced.

It was favoured by the Liberal and Labour Parties and was put in force for many years and proved costly to the individual, unremunerative to the Exchequer, and disastrous to building activity, and it was repealed by a Coalition Government. In our present very serious difficulties, we hope that experience for once will have taught its lesson.

PROPOSED AMALGAMATION OF THE R.I.B.A. AND SOCIETY OF ARCHITECTS

THE following is a précis of the proposals agreed between the Council of the Royal Institute of British Architects and the Council of the Society of Architects for the amalgamation of the two bodies :—

The Councils of the Royal Institute and The Society of Architects are agreed after a careful review of the situation from all sides that the interests of the profession, as a whole, will be best served by the amalgamation of the two Societies and a return to the position of 40 years ago, when the Society broke away from the R.I.B.A. on the Registration question.

They are further agreed that if terms satisfactory to Members of both Societies can be settled, such an amalgamation will undoubtedly strengthen the hands of the profession in dealing through one representative Society instead of two, with such questions as :—

(1) Registration.
(2) Education and the very complete system of schools which has grown up throughout the Empire.
(3) The control of Public Competitions.
(4) Professional Practice.
(5) Negotiations with Government and Public Bodies.
(6) Questions which continually arise between the profession and the public which it serves.

Both Councils realise that no terms can be arranged which will be equally agreeable to everyone, and that the members of each Society must make some concession to the common good.

Such an arrangement could only be suggested if, as both Councils believe, it is for the ultimate good of the profession and the public.

With this object in view the following terms have been agreed upon by the two Councils after much anxious consideration, and in due course will be recommended to the Members of both Societies for acceptance.

TERMS OF AMALGAMATION.

The Terms of Amalgamation conveniently group themselves under three main headings, and are to be embodied in a document agreed to by both Councils and circulated to the Members of both bodies.

(A) Membership.
(B) Action after Amalgamation.
(C) Finance.

(A) MEMBERSHIP.

1. (*a*) *Fellows of the Society*, approximately 170*, to become *Fellows of the R.I.B.A.*

(*b*) *Members of the Society*, approximately 980*, to become Licentiates of the R.I.B.A., with full corporate powers and the power of voting on all subjects, and the right to use the affix L.R.I.B.A. and the title "Chartered Architect."

(*c*) *Licentiates of the Society*, approximately 180*, to become Students of the R.I.B.A., with privilege of becoming Licentiates of the R.I.B.A. as and when they are qualified to do so. [See para. 3.]

(*d*) *Students of the Society*, approximately 130, to become Probationers of the R.I.B.A.

NOTE.—Provision to be made for Members of the Society who have passed the Society's Membership Examination, some 150 in all, to qualify for Associateship of the R.I.B.A. if they wish to do so, on passing a Special Examination in Design and in those subjects which are not included in the Society's examination.

2. The names of the Retired Members of the Society to be printed in a separate list in the R.I.B.A. Kalendar, and they are to enjoy the privileges of Retired Members of the R.I.B.A.

3. The qualifications to enable Licentiates of the Society to pass from the class of Students of the R.I.B.A. to the class of Licentiates of the R.I.B.A. to be drafted by the Council of the Society to correspond with the qualifications now in force to enable them to become Members of the Society.

4. Licentiates of the R.I.B.A. to be granted full corporate powers with full voting powers on all subjects with the use of the affix L.R.I.B.A.

5. All Fellows, Associates and Licentiates to be entitled to use the title "Chartered Architect" if they wish to do so, in addition to the appropriate R.I.B.A. affix.

6. The Society undertakes to cease approving candidates for membership as soon as the two general bodies have ratified the terms of the amalgamation.

7. Further, as these proposals entail alterations to the R.I.B.A. Charter and By-Laws, it is intended to ask the Privy Council to authorise the following additional alterations at the same time, which, it is believed, will facilitate the working of the Institute machinery—*i.e.*, proposals :

(*a*) To ensure a more adequate representation upon the Council of each corporate class.

(*b*) To effect continuity of a Council's policy by limiting the number of its Members put up for re-election annually.

(*c*) To increase the representation of the Allied Societies, including those overseas, on the R.I.B.A. Council.

(*d*) To enable important questions of Institute policy to be submitted to a referendum of all Members in lieu of a General Meeting in London only.

NOTE.—The following information is given to enable Members to see the effect of these proposals upon the Membership of the R.I.B.A. :—

* The remainder of the Fellows, Members and Licentiates of the Society, are already Members or Licentiates of the R.I.B.A.

BEFORE AMALGAMATION.						AFTER AMALGAMATION.	
Approximate Membership of the R.I.B.A.			Approximate Membership of the Society of Architects (October, 1923).				
Fellows	.. ..	960	Fellows	.. ..	200†	F.R.I.B.A.	 1,130
Associates	.. ..	2,350	Members	.. ..	1,137	A.R.I.B.A.	 2,350
Licentiates	.. ..	1,380	Licentiates	.. ..	167	L.R.I.B.A.	 2,347
Students	.. ..	293	Students	.. ..	130	Students, R.I.B.A.	.. 455
Probationers	.. ..	500				Probationers, R.I.B.A.	630
TOTAL	.. ..	5,483	TOTAL	.. ..	1,634	TOTAL	 6,912

† These figures include a certain number who are already Members of the R.I.B.A.

It is estimated that at the end of 10 years, at the normal rate of increase of the Associates and decrease of the Licentiates by wastage, the figures will be approximately:—

Associates	3,000
Licentiates	1,500

No provision is made for the admission to the R.I.B.A. of any unattached Architects other than the above, except through the ordinary channels, but it is hoped that many may be induced to join their local Societies allied to the R.I.B.A., and thereby assist towards the complete unity of the profession.

(B) Action after Amalgamation.

1. The R.I.B.A. undertakes, immediately upon the ratification of the terms of amalgamation, to appoint a Registration Committee upon which the Society shall be equally represented with the R.I.B.A. to draft and carry through its various stages the Registration Bill until it becomes an Act.

2. The Society undertakes, when the amalgamation is completed and the transfer of members effected, to begin to take the necessary steps for the winding-up and dissolution of the Society.

(C) Finance.

1. The Members of The Society of Architects joining the R.I.B.A. will not be required to pay entrance fees. The subscriptions for all Members of the various classes of the R.I.B.A. to be as follows:—

Fellows	£5 5*s.* 0*d.* per annum.
Associates & Licentiates	£3 3*s.* 0*d.* per annum.
Students	£1 1*s.* 0*d.* per annum.

2. The surplus of assets over liabilities of the Society was estimated at the last audit in October 1923 at £7,000. It is estimated that if the scheme is carried through the R.I.B.A. will have an additional income of between £5,000 and £6,000 a year.

APPENDIX.

Opinion of Mr. Edward Shortt, K.C.

On the advice of the Parliamentary Agents of the R.I.B.A., the opinion of Mr. Edward Shortt, K.C. (late Home Secretary), was obtained.

The case submitted to Mr. Shortt and his opinion upon it are appended.

Royal Institute of British Architects.

Memorandum for Opinion of Counsel.

1. The architectural profession demand that a serious attempt should be made to obtain the Statutory Registration of Qualified Architects.

2. At present there are two independent professional organisations in this country:—

(*a*) The Royal Institute of British Architects, with over 5,000 members and students and a network of "Allied Societies" and Branches (37 in number), covering the whole country, and embracing several thousand additional members. The R.I.B.A. is the Royal and Chartered body founded 90 years ago to foster the art of architecture and protect the interests of the profession.

(*b*) The Society of Architects, founded 40 years ago, an unchartered body of some 1,600 professional members and students, completely independent of the R.I.B.A. and endeavouring to discharge similar functions to those of the R.I.B.A.

3. The Society of Architects have declined to support and would almost certainly oppose a Registration Bill promoted by the R.I.B.A. on the only lines which are acceptable to the Council of the R.I.B.A., but would support a Bill which provided for the establishment of a new federal organisation to control the whole profession.

4. The R.I.B.A. will not promote or acquiesce in a Bill which hands over the control of the profession to a new body independent of the R.I.B.A., and will only support a Bill which confirms the chartered position of the R.I.B.A. as the supreme governing body of the profession.

5. As a way out of this *impasse*, the Council of The Society of Architects propose to dissolve their Society on condition that their members are admitted into the R.I.B.A., so leaving the R.I.B.A. with its network of "Allied Societies" as the sole and supreme professional organisation of Architects in the Kingdom.

6. If this solution is accepted, there is no obstacle to the drafting of a Registration Bill on the lines desired by the R.I.B.A.

The opinion of counsel is desired on the following question:—

"Has the R.I.B.A. a better chance of success with its Registration Bill if it absorbs The Society of Architects as suggested in paragraph 5, or if it leaves the Society in its present independent state?"

Opinion.

Having regard to paragraphs 3 and 4 of these instructions, I do not think that any Bill could succeed in present circumstances. But if The Society of Architects dissolve, as suggested in paragraph 5 of these instructions, and the Members are admitted into the R.I.B.A., the hands of the R.I.B.A. would be immensely strengthened. Coming to Parliament, as they would, for the protection of the public as well as for their own better regulation, they would speak with the united and unanimous voice of the whole profession. I am of opinion that their chances of success would be infinitely greater than they would be in present circumstances.

E. Shortt.

3, Hare Court, Temple, E.C.1.
April 9, 1924.

Both the Royal Institute and the Society of Architects have issued statements referring to the scheme.

The R.I.B.A. states: "It is proposed that the R.I.B.A. should absorb the Society of Architects. The proposal is supported by most of the leaders of the profession, because of its immense value in dealing with all matters on which it is desired to influence public action, apart from and in addition to the question of registration.

"(1) As a Council we have declined, in the interests of the R.I.B.A., to consider a registration policy which does not leave the R.I.B.A. supreme as the registration authority.

"(2) The Council of the Society of Architects could not see their way to support an R.I.B.A. Bill on these terms, but offered to consider the dissolution of their Society and the absorption of their members by the R.I.B.A. as an alternative.

"(3) As it was obvious that no success could be achieved if an organised body of architects, such as the Society, numbering some 1,700 members, were not in agreement with our proposals, we agreed to consider absorption, providing the position of our examined classes could be secured and no new class of members created.

"(4) The terms now submitted embody these vital principles. The R.I.B.A. will then occupy the undisputed position of being (with its allied societies) the only organised body of architects in Great Britain, the Associate class still retaining its distinction of being composed solely of men who have passed our examinations.

"(5) The class which will be mainly increased in numbers is the Licentiate class. This is a dying class, and by the effluxion of time will cease to exist altogether, leaving the R.I.B.A. with Fellows and Associates only, and no further admittances to membership without examination.

"If returned to office the Council will at once submit to the General Body proposals for confirmation.

"That members of the Royal Institute will support these proposals and take a broad and statesmanlike view of the situation is the earnest wish of the Council and of the members of the Allied Societies' Conference."

The Society of Architects states: "There are indications that any criticism by members may be directed chiefly to the proposal to transfer them to a class of 'Licentiates' within the Institute, but this class of 'Licentiates' must not be confounded with the present one, the members of which have no corporate existence within the Institute. The new class of 'Licentiates' are to have full corporate membership of the R.I.B.A., and voting powers on all subjects, including the Charter and By-laws, and the right to describe themselves as Chartered Architects and to use the affix 'L.R.I.B.A.' The Society's proposal was for the new class to be described as 'Members' of the Institute, but inasmuch as the term 'Member' in a general sense would include Fellows, Associates and Licentiates of the R.I.B.A., its use could not be restricted to one class of membership. There are some who consider the designation 'Licentiate' as suggestive of higher qualifications than that implied by 'Member.'

"The only object of the Council of the Society in agreeing in principle to amalgamation with the Institute is for the purpose of accomplishing the main object for which the Society was founded and is being carried on, viz., the attainment of statutory registration of architects. The Council of the Society is of the opinion that such amalgamation is a necessary preliminary to registration, and that the chance of obtaining statutory registration will be enormously strengthened and increased by amalgamation with the Institute, which is itself pledged to pursue the same object and has given an undertaking to the Society, in the event of the amalgamation taking place, to promote a Registration Bill and to pursue it until it becomes an Act.

"The Council trusts that if and when the time comes that the members of the Society are called upon to make a decision in regard to amalgamation, they will regard the process of absorption merely as a means to an end, and that any who for personal reasons might, in normal circumstances, have felt disinclined to accept the proposed terms of transfer will realise that they are the members who, if they are far-seeing and generous enough to put aside personal feelings and support the Council, will be amongst those without whose aid it would have been impossible for the Society to take advantage of the opportunity now afforded it of accomplishing the main object for which it was founded."

MEETINGS

Saturday, *April* 26.

Royal Institute of British Architects.—Visit to Kensington Palace.

Monday, *April* 28.

Illuminating Engineering Society.—Discussion on "Some Problems in the Lighting of Textile Mills," by Mr. E. L. Oughton and Mr. P. J. Waldram. At 18, John-street, Adelphi, W.C.2. 8 p.m.

Architectural Association.—Mr. H. Crichton Millar on "The Role of Phantasy in Life." At 34, Bedford-square, W.C.1. 7 p.m.

London Society.—Dinner. At Hotel Victoria, W.C.2. 7.45 p.m.

Tuesday, *April* 29.

London Association of Master Decorators.—Annual General Meeting.

Builders' Clerks and Benevolent Institution.—Annual Dinner. At King's Hall, Holborn Restaurant. 6.30 p.m.

Wednesday, *April* 30.

Royal Society of Arts.—Sir H. Maybury on "London Dock District and Its Roads." At 18, John-street, Adelphi, W.C.2. 8 p.m.

New Hospital at Epsom.

The new West Park Mental Hospital, which the London County Council has had built on its estate at Epsom, and which is to be opened by Mr. Wheatley, Minister for Health, on June 20, occupies 97 acres, and will have cost about £750,000. There will be accommodation for 2,000 patients, and the institution is the fourth of its kind on the L.C.C.'s Epsom estate of 1,040 acres.

SEWAGE DISPOSAL FOR COUNTRY HOUSES

By HENRY C. ADAMS, M.Inst.C.E., M.I.Mech.E., F.R.San.I.
(Lecturer on Sanitary Science, Northern Polytechnic Institute).

THE sewage from isolated or independent residences, or blocks of cottages, may be dealt with by a conservancy system or a water-carriage system. In the former the excretal matter is collected in pail-closets or privies, which are emptied periodically and the contents buried in the ground, while the slop water and liquid wastes are either thrown on to the garden ground, or, preferably, discharged into drains which convey it from the immediate vicinity of the dwelling. In a complete water-carriage system water-closets are used and the whole of the foul matter from the premises is collected by a system of drains.

There are several alternative methods of dealing with the sewage delivered by the drains. It may be collected in a cesspool, which should be watertight and sufficiently large to hold about three months' flow of sewage. To prevent the cesspool filling too quickly, all rainwater should be separated from the foul water and should be carried off by a distinct set of drains. In order to avoid the expense and unpleasantness of emptying the cesspool it is sometimes allowed to fill up and overflow on to a convenient plot of land, but this is an undesirable arrangement because in such circumstances the sewage is in a highly septic condition and cannot be exposed on the ground without offence. Further, during frosty weather the sewage will pond on the surface, while during wet weather the ground will tend to become waterlogged, and during some of the remaining time growing crops are better without the application of sewage; consequently overflows are generally prohibited. The manurial value of the sewage is small, as it is diluted with such a comparatively large volume of water, but if it is really desired to put it on the land it should first flow through a small tank, holding about half the daily flow, to intercept the solid matter. The accumulated matter should be removed from this tank weekly, and some arrangement must be made for dealing with the liquid during such times as it cannot be put on the land. Another method is to pass the sewage through a sedimentation tank and dispose of the liquid by sub-irrigation, or alternatively the sewage may be completely purified, when the effluent water can be discharged into any convenient ditch or brook. The cesspool system is certainly cheaper in first cost than a proper purification plant, but its emptying is a continual source of expense, and, as usually performed, is a most objectionable operation. Except for very small property, where the quantity of sewage is similarly small, a purification plant is decidedly to be preferred. It is sanitary and convenient, and the cost of upkeep is negligible; it requires very little supervision, but such should be given regularly; and if properly designed and managed with ordinary intelligence it will purify the sewage year after year without any nuisance from smell or otherwise.

The effective and economical purification and disposal of the sewage from isolated habitations is one of the most difficult problems of sanitary science on account of the small and highly-concentrated volume of sewage, the variable flow, and the frequent rushes of bath and laundry waters. From the structural point of view difficulties usually arise from the absence of sufficient slope in the surface of the ground to enable the sewage to be treated and discharged at such a level that it will gravitate freely to some natural stream which will carry it away. The quantity of sewage to provide for is calculated on the basis of a certain number of gallons per day per head of the persons present in the house, and varies within wide limits. It corresponds very closely with the quantity of water used, for, after all, sewage is only the pure water supply fouled by soap, grease and other impurities resulting from the cleansing of houses and utensils, from personal ablutions and from culinary processes, together with urine and fæces emanating from the body. For cottage property with water-closets and fixed baths the quantity may be 15 gallons per head per day, but if such fittings are not installed the quantity may be as low as 10 gallons. For larger property, hospitals, &c., 40 gallons per head per day is not an excessive allowance, while for industrial schools and public institutions 30 gallons may be expected. Visitors must be included with the residents, and allowance should be made for horses (15 gallons per day) and carriage and car-washing (8 to 15 gallons per day each).

The design of the works must necessarily allow some latitude in the quantity of sewage that can be dealt with, but it is equally detrimental for the allowance to be excessive as to be insufficient. If the number of persons in residence varies greatly from time to time it is advantageous to arrange the installation in two parts, only one of which would be used when the daily flow of sewage is small. Generally speaking, the greater the volume per head the weaker the sewage. The presence or otherwise of water-closets does not materially affect the strength of the sewage or the difficulty of purification. The purification of sewage is partly a process of digestion whereby the fætid organic matter is resolved into its harmless elemental parts, and water-closet sewage has already been digested to some extent in its passage through the body, while it also brings with it a considerable volume of diluting water. It is a mistake to think that sewage requires less treatment when there are no water-closets.

The purification of the sewage is effected by micro-organisms consisting of low forms of animal and vegetable life which multiply very rapidly. It has been stated that sixteen million organisms are produced in one day from one bacterium These organisms exist in the sewage itself and are retained in the purification plant while the sewage passes slowly through it. The plant should be devised to provide suitable environment for the organisms to develop, and to maintain them in a high state of efficiency. The organisms consist of anaërobic bacteria living and working without air and aërobic bacteria which require an ample supply of light and air. The function of the former is to break down and liquefy the organic compounds and reduce them to simpler forms, while the aërobic bacteria oxidise and nitrify the organic matter in solution and complete the purification of the sewage. It follows, therefore, that a complete plant must consist of two distinct portions—first, a tank where the greater part of the solid matter in suspension is intercepted and partially liquefied, and, second, a bed for the aërobic bacteria, called a filter, freely exposed to the air, to render the organic matter harmless and the effluent fit to discharge into any small water-course. A typical arrangement is shown in Farrer's improved automatic distributor illustrated in Fig. 1. Proposals are frequently put forward for treatment of sewage in tanks only, on the assumption that the resulting liquid is "half" purified and that as the visible solid matter is extracted no harm can result from the discharge of the effluent. This is totally wrong, as the sewage is not partially purified but only prepared for purification, and the liquid is actually more offensive than the crude sewage, because decomposition is in a more advanced state.

Septic sewage is that which has undergone extended decomposition under anaërobic conditions, and a septic tank is one designed and worked to produce that result. Any tank will become a septic tank if it is of large capacity relative to the daily flow at the time, and if the sludge is allowed to remain for long periods in the tank. A tank through which the sewage passes in a short time and from which the sludge is removed frequently is called a semi-septic, non-septic, liquefying, or sedimentation tank. In the case of town sewage the operation of breaking down the solids in suspension is commenced during the passage of the sewage through the sewers, and sewage travelling some distance is partly septicised when it reaches the works; consequently the period of detention in the tanks has been reduced so as to stop the anaërobic action from proceeding too far, because septic sewage is more difficult to treat on open filters.

In the case of private installations the circumstances are quite different. The sewage reaches the outfall in a few minutes, paper and fæces arrive in an unbroken condition, and the suspended solids in the slop and waste water are practically unacted upon. Obviously, a longer period of detention must be given before the sewage is suitable for treatment on a filter. The discharge of large volumes of hot waste water from the house is detrimental, but the effects can be nullified by a fairly large tank, the liquid in which will exert a cooling effect. As the sewage passes through a tank the light flocculen

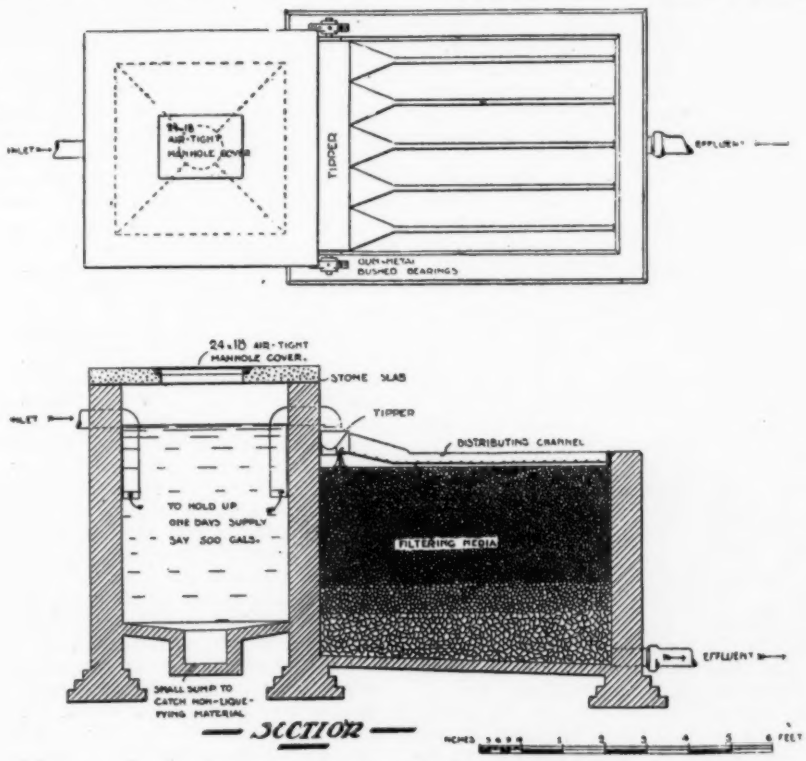


Fig. 1—Automatic Sewage Distributor.

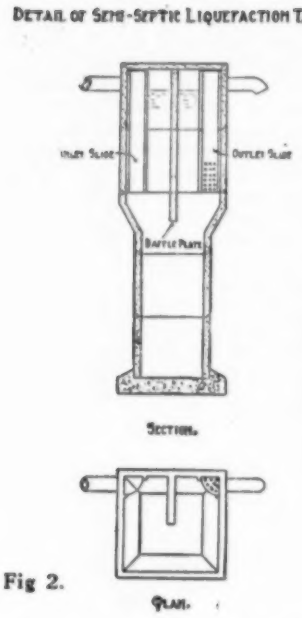


Fig 2.

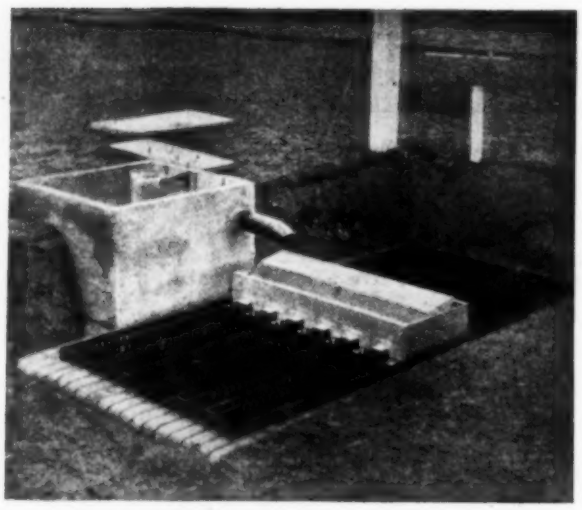


Fig 3.—Semi-Septic Tank and Filter Distributor for House with Ten Persons.

matter rises to the surface and forms a scum, while the heavier suspended matter sinks to the bottom as sludge. The liquid at or about the middle of the depth of the tank is therefore fairly clear, consequently the outlet should be arranged to draw off the liquid at a level 15 in. to 24 in. below the surface. The inlet should be similarly submerged to prevent disturbance of the scum or sludge. For the same reason the total depth of the tank should be from 5 ft. to 6 ft. In order to secure the necessary detention of the liquid, the volume of the tank should be equal to from one to one-and-a-quarter times the total daily flow. The rate of inflow to the tank will correspond with the flow of sewage from the house and may vary from nil to forty times the average flow. The best results would be obtained by an even rate of flow through the tank, but as this is impracticable the area of the tank should be comparatively large so that a sudden flow of bath waste shall not unduly raise the surface level and increase the "head" of discharge; and the outlet should be restricted or controlled. A small pipe, say, 1½ in. diameter, or an orifice, would effect the retardation of the flow through the tank, but they would be very liable to become choked in use without constant cleaning. A floating weir with narrow outlet gives good results, but it is expensive; it allows any rush of bath or laundry water to pond up in the tank and flow out at an even rate. In order to effect a thorough mixing of the fresh sewage with that already in the tank, the inlet and outlet should be arranged to prevent a straight flow through, thus an elongated form of tank is desirable; a proportion frequently adopted is length twice the width. In the tank designed by Messrs. Tuke & Bell (Fig. 2) the circulation of the liquid is brought about by a baffling partition wall. Fig. 3 shows a complete installation by the same firm. It will be desirable generally to cover the tank to prevent the possibility of smell, but ventilation should be provided by means of a fresh-air surface inlet and 3 in. vertical outlet shaft at least 6 ft. high. A sump should be formed in the floor in a convenient position to permit the insertion of a pump for the removal of the sludge. The sludge resembles watery mud in consistency, and can be easily removed with a chain pump of the usual type.

The filter may consist of any hard vesicular material with a rough, unglazed surface, and that is not likely to break down or disintegrate under the weather and working conditions. Gasworks' or destructor works' clinker is good, but there is apt to be too much coke mixed with the former. Coke will probably crush in the bed, and the resulting dust may interfere with the porosity of the filter. Blast-furnace slag is extremely good if the glassy type be avoided. Gravel is not desirable, as the surface is too smooth to afford safe lodgment for the bacteria, which may be washed away by an excessive flow at any time. Burnt ballast is undesirable, as in use it tends to revert to a clayey character and solidifies in the bed. The material should be freed from all dust and be washed before use. In forming a filter a concrete foundation, 6 in. thick, is laid over the site with falls to one point for the discharge of the effluent. On the concrete, two or three lines of 3 in. butt-jointed field pipes are laid, converging to the outlet. It is advantageous slightly to recess the surface of the concrete to form cradles for these pipes. The pipes are then surrounded and covered with a layer 6 in. thick of large clinker, say, 4 in. gauge, and then the remainder of the bed built up with material broken to ¾ in. gauge. The total depth should be about 5 ft., but if the available fall is limited the depth may be reduced to 3 ft. as a minimum. The quantity of material required depends upon the strength of the sewage; a good result should be produced with 1 cub. yard to every 50 to 70 gallons of the daily flow. The outside of the bed may be enclosed with light concrete or brick walls, or encased with expanded metal supported on a light T-iron framework.

A new filter has no purifying effect, but after sewage has been run through it for some time each particle of the material in the bed becomes coated with a layer of bacterial growth. The sewage is distributed over the surface of the bed, and as it slowly trickles or percolates through it comes into intimate contact with the bacteria, and is converted into a clear, harmless liquid. An even distribution of the sewage over the surface is an essential to success, and many designs of distributors have been evolved to effect this. Two types are shown in Figs. 1 and 3, which consist of a number of troughs from which the sewage overflows fairly regularly on to the surface of the bed. Another design, the invention of Mr. F. Wallis Stoddart, is shown in Fig. 4, and consists of a plate with V-shape corrugations slotted at the top and having holes in the bottom through which nails are placed. As the sewage fills up in the troughs it overflows and runs down to the underside of the V, where it collects and drops from the bottom of the nails in the form of a fine rain. A distributor which involves the discharge of the sewage through small holes is generally very efficient, but requires frequent attention owing to the tendency of the holes to clog up. With a small and very variable flow, as from a domestic installation, it is necessary to provide an automatic tipper which collects the sewage flowing from the tank and which falls over when full, ejecting the sewage through all the distributing channels on one half of the bed. The tipper in its new position is then ready for discharging on the other half of the bed as soon as it is full again.

If the levels permit, the effluent water can be run direct into a small stream, but it is desirable that the flow of the stream should exceed that of sewage in the ratio of at least 5 to 1. If such a stream is not available, and sometimes in view of other circumstances, double filtration is desirable. In such cases two filters are constructed at such levels that the effluent from the bottom of the first will flow on to the top of the second, at the bottom of which the final effluent will be delivered. To obtain a scheme worked throughout by gravitation a fall of about 8 ft. is desirable, although one could be arranged with slightly less. When a suitable fall is not available an extra tank has to be constructed to collect the effluent from the filter. The capacity of this tank depends upon the frequency with which its contents are pumped out; the liquid is clean and can remain in the tank an indefinite period. Any efficient pump can be used, worked by hand or power. If automatic pumping is required a wind engine and pump make a useful combination.

If the soil is fairly light, the sewage, after passing through a tank, may be disposed of by sub-irrigation, thus avoiding an artificial filter bed. About 1½ square yards of land are required for each gallon of the daily flow. The plot should be prepared by laying ordinary 3 in. perforated butt-jointed pipes with joints ¼ in. apart, in grid-iron form, at a depth of 12 in. below the surface of the ground, and falling about ½ in. per yard towards the extremities. Junction boxes with stops should be provided to regulate the flow. A syphonic or tipper discharge should be used to ensure the sewage reaching the extreme limits of the irrigation ground, and the main delivery pipe should be close jointed. Each discharge should be sufficient to fill all the pipes. The distributing pipes will require to be taken up periodically and cleaned; it is, therefore, desirable to lay them on narrow concrete beds, slightly hollowed, which not only form guides for the pipes, but ensure their being laid and maintained in correct lines and gradients. The sewage will become purified as it sinks through the ground, and may be allowed to flow away through natural courses provided no surface water in the neighbourhood is used for drinking purposes. Where necessary the ground can be under-drained to collect the effluent by 4 in. field pipes laid at a minimum depth of 4 ft., but, of course, a safe outlet must be provided.

There are no patents in the principles of sewage purification, nor in the design of the works for the purpose as outlined herein, so there is plenty of scope for individual skill, but certain fittings, such as the distributors, of which there are numerous patterns, are protected. It is impossible to advocate any particular method; each case must be considered and the solution rest on the judgment of the sanitary engineer.

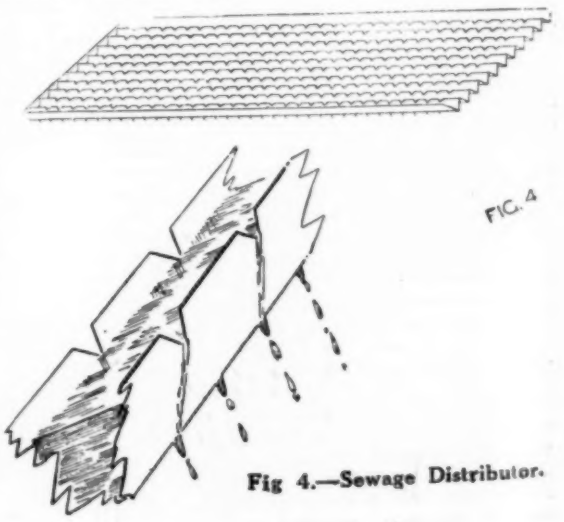


Fig 4.—Sewage Distributor.

ELECTRIC LIFTS

AT a recent meeting of the Institution of Electrical Engineers Mr. H. Marryat read a paper entitled "Electric Passenger Lifts."

After giving some historical notes on the subject he said given the necessary particulars of a building the lift engineer would be able to calculate the probable traffic. It must be admitted, however, that the lift engineer himself did not usually employ any scientific method in arriving at the number of passengers per minute which would require lift service on each particular floor during the busy part of the day. Each would draw upon his own experience and home-made formulæ. If these could be collated the general advantage would be served and many mistakes avoided.

Some interesting figures derived from American practice were given in a paper by Mr. Harrison P. Reed from which it was learnt that in New York City from 65 to 100 sq. ft. of rentable floor space was the average allowance per person occupying an office building. In other cities the allowance should be increased to 150 sq. ft. per person and it was estimated that a lift service should be provided to empty such buildings above the first floor in from 40 to 60 minutes. It was, however, doubtful if American figures of that description applied to this country. The only English pronouncement that he could find was contained in a paper read recently by Mr. C. H. I. Day, in which he said—referring to a large office building—that the average density of population was about 120 sq. ft. of floor space for each occupant, but when one or two large firms occupied a whole building the population was almost certain to be denser than this, amounting perhaps to as much as 80 sq. ft. of floor space per person.

In the absence of any definite information on that point, Mr. Day said it was considered safe to assume about 110 sq. ft. per person as a fair average. He also said that in buildings where tests had been made the rate of traffic flow at the busiest time of the day had been found to be such as to include the equivalent of the entire population of the building in 45 minutes, and that the passenger traffic could be predetermined by allowing for a period of rush from 15 to 20 minutes, during which time a number equal to one-third of the population of the building was dealt with.

Figures derived from his own observation were not in agreement with this; he had not yet amassed sufficient data to permit of his making an authoritative pronouncement.

In the first place the buildings in which lifts were usually installed had been divided into a large number of classes and each class had been separately examined under conditions which, he believed, applied to that particular class. For instance, in large drapery establishments and multiple-store buildings he counted the number of persons per minute proceeding from the ground floor to upper floors. In office buildings of the class usually sub-let to a large number of different tenants he took no notice of persons arriving at or departing from the basement, ground floor or first floor, but made a count upon the second floor of all persons arriving at, passing, or departing from that floor. In office buildings in which several or all the floors were occupied by the same tenant—an insurance office, for instance—he counted the number of persons arriving at and departing from each floor, so as to check the inter-floor traffic; and in buildings where there was a restaurant on one of the floors a separate census was taken of the number of persons arriving at and departing from the restaurant, in order to check the special traffic so created. In taking that census of traffic in existing occupied buildings, he had at the outset been faced with the fact that existing lift accommodation was, in almost every instance, insufficient. It had been necessary, therefore, to count not only persons using the lifts but also those using the staircases.

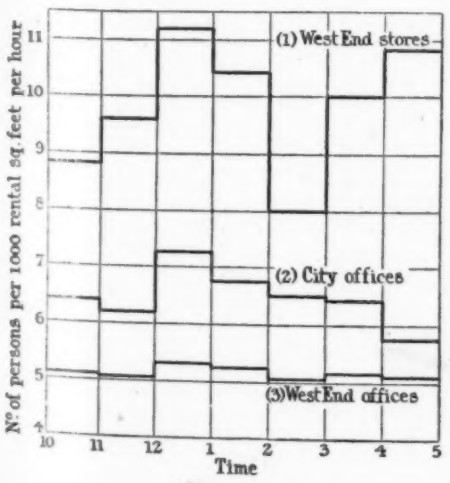


FIG. 1.

In Fig. 1, curve (1) represented the average traffic counted in a group of West End drapery establishments. In each case the number of persons proceeding per hour from the ground floor to any other floor had been counted, and the curve represented the average of all establishments examined. Curve (2) represented a similar average deduced from a count taken in a large group of City office buildings of the class in which the floors were sub-let to a variety of tenants. The curve indicated the number of persons per hour who arrived at or passed the second floor. In order to obtain a more accurate estimate of the period between 1 o'clock and 2 o'clock mid-day, the more detailed curves shown in Fig. 2 were prepared. The third example in Fig. 1 comprises a similar group of offices situated in the West End of London. The different characteristics were strikingly shown. In the latter case there was no "rush" period, so that in order to provide the same lift facilities for the same population, less lift capacity was required.

To arrive with more accuracy at the lift capacity required for a City office building of the class usually sub-let to a variety of tenants, it would be observed from Fig. 1 that the largest amount of traffic occurred between noon and 1 p.m. As the effect of the dinner-hour traffic was not clearly indicated, it was decided to take detailed observations over the whole period from 11.30 a.m. to 2.30 p.m. in order to arrive at the true maximum traffic requirements on the building.

Eleven office blocks comprising both large and small buildings were selected. In every case care was taken to watch not only all lifts but all staircases simultaneously. A count was made upon the second floor of every person arriving at, departing from, or passing that floor in each direction. The result of that count had been carefully reduced to persons per hour per 1,000 sq. ft. of rental floor area above the first floor. The observations were recorded at the end of every minute, and plotted for each separate building in the series of curves shown, the average of which was given in Fig. 3. Some interesting things might be learnt from this. It would be noticed at once that the traffic was inclined to move in bunches, and that had the observations been taken over 2-minute intervals the curve would have been very different in form. A curve had been prepared to illustrate this, and showed clearly the errors likely to arise from taking a count over any period longer than one minute, as it was the maximum traffic, and not the average with which the lift engineer had to deal.

Fig 3 showed that the average traffic per hour per unit of floor space taken during the period 11.30 a.m. to 2.30 p.m. was approximately 6.98, and between 12.10 p.m. and 1.10 p.m., 7.5. If, however, provision were made for the average traffic only, it was obvious that many people would either wait for several minutes for lift service or use the stairs in preference.

It might be considered unnecessary to provide accommodation calculated upon a maximum traffic which might only occur during a single minute of the day, but in that connection it must be remembered that the curve itself was an average of 11 typical buildings and that the maximum of 9.6 must be compared with the maximum of over 20, shown for a 1-minute period on three of the individual buildings. It was reasonable, therefore, to provide for the maximum indicated in Fig. 3.

The effect of providing a lesser lift service might be gauged by reference to Table 1, which gave figures for City (London) office buildings.

TABLE 1.

Lift capacity in persons per hour per 1,000 sq. ft. rental floor area above first floor.	Number of minutes during the day when lift capacity will be insufficient.
7	84
7.5	56
8	33
8.5	14
9	5
9.5	1

Assuming that a lift capacity of 9.6 persons per hour per 1,000 sq. ft. of rental floor area above the first floor in the class of building specified were allowed, and taking the New York allowance of 65 to 100 sq. ft. of rental floor space per inhabitant—say 82.5 sq. ft.—the lift capacity arrived at would allow for emptying the building above the first floor in 1 hr. 15 min., a figure which differed altogether from those arrived at by American authorities and by Mr. Day, but which was, he believed, when applied to buildings in the City of London, a more accurate one.

In order, then, to discover the lift capacity in such a building, the following formula might be used:—

$$\frac{9.6A}{NL}$$

where A = thousands of sq. ft. rental floor area the first floor;
N = number of circular trips, including stoppages, which could be made per lift per hour; and
L = number of lifts.

Having discovered the total lift capacity required, it was next necessary to decide the number of lifts to be employed and their speed.

As about 30 seconds represented the limit of patience to be expected of the average city man waiting for a lift, a building could not be considered to be adequately served when the occupants or visitors were asked to wait longer. To calculate the number of lifts required to handle a given traffic and give a half-minute service, the overall speed of the lifts—allowing for all stoppages—must be known. The number of stoppages a lift might be required to make in the course of a return journey from the ground floor and back again varied considerably, but in the class of building considered it was found to average about one stop for every 42 ft. of running. Allowing 12 seconds per stop for loss in acceleration, deceleration, opening and closing of gates and for the time taken by the passengers in entering and leaving the car, together with a further allowance to cover

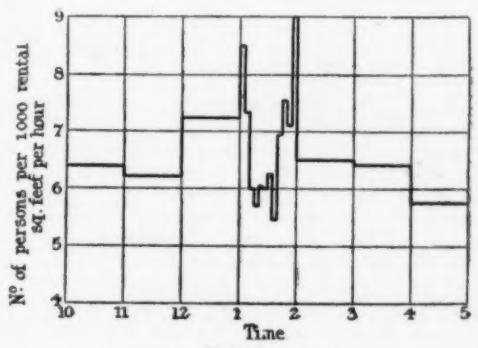


FIG. 2.

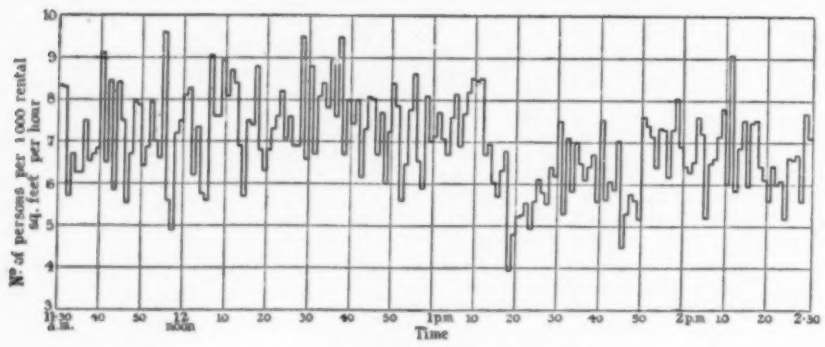


FIG. 3.

general loss of time, the overall time in seconds required for the circular trip would be :—

$$\frac{60 \times 2T}{R} \times \frac{2T \times 12}{42}$$

where R = running speed of lift in ft. per min.,
T = total travel of lift in feet in one direction.

In the case of a lift with 100 ft. travel and a running speed of 200 ft. per min., the overall time for the circular journey would be 117 seconds. In such a city office building two lifts of given capacity might not provide the required service, whereas three would more than do so, but by slightly increasing the speed the two lifts would suffice.

He made an allowance of 12 seconds for stoppage and lost time in an all-round average service. This would only be found sufficient provided the car were not too large. If the capacity was more than 10 persons—including attendant—the time allowance and the total lift capacity must be increased accordingly. It must also be assumed that the lifts were suitably situated and designed with wide openings for the easy ingress and egress of passengers. Under such conditions the effect of running speed upon overall speed might be set out as in Table 2 for a lift of 100 ft. travel.

TABLE 2.

Running Speed.	Overall time per circular trip with 100 ft. travel.
ft. per min.	secs.
100	177
200	117
300	97
400	87
500	81
600	77

The saving in overall running time fell off as the running speed was increased, so there must come a point at which additional capital cost was not justified by the saving in time. In Table 3, approximate figures were given in order to indicate the relation of running speed to capital cost for a lift designed for a load of 10 persons.

TABLE 3.

Running speed. ft. per min.	Extra cost (approx.) of machinery and safety devices (July, 1923). £
60	—
100	25
200	75
400	150
500	190
600	200

The figures did not represent a large percentage upon the cost of a lift of the travel and capacity under consideration, and, when taken in conjunction with a consideration of the saving of rent and attendance, would generally work out in favour of the higher-speed lift.

In Fig. 4 were shown diagrammatically the methods of reeving more usually employed, in (*a*), (*b*), (*c*) and (*d*), the winding engine being indicated at the head of the well, and in (*e*), (*f*), (*g*) and (*h*) at the foot. The ideal arrangement was indicated in (*a*), in which the driving sheave spanned the distance between the suspension points of the car and counterweight. Arrangement (*b*) was not so satisfactory but might be necessitated by considerations of economy, because the smaller the diameter of the driving sheave the less expensive were the motor and gear, or because the distance between the car and counterweight centres was too great to be conveniently spanned by a single sheave, or in order to comply with the particular building plan. Arrangement (*c*)—sometimes termed the "full-wrap drive"—might be employed where the out-of-balance load was considerable and there was danger of rope slip on the driving sheave. It was possible with this method of reeving to employ U grooves instead of the usual V grooves on the driving sheave, thereby greatly reducing the wear on the ropes. With this arrangement the idler sheave might be so placed [as in (*b*)] as to act as a diverting sheave in cases where the driving sheave could not be designed to span the distance between the car and counterweight. Arrangement (*d*) showed an adaptation of reeving which might be applied to (*a*), (*b*) or (*c*), introducing a 2 : 1 reduction in car speed. This method and further extension of the same principle might be conveniently employed when very heavy loads had to be raised at low speed. It would be noticed that in this diagram was introduced for the first time an S or backward bend in the rope. Such bends should be avoided where possible as they were much more destructive than a series of bends in the same direction.

Diagrams (*e*), (*f*), (*g*) and (*h*) showed similar arrangements but with the winding engine at the foot of the well. In these arrangements the lengths of the ropes were greatly increased and S bends were introduced in every instance. The arrangements with diverting sheave shown in (*f*) was for some reason exceptionally destructive of the ropes.

Whatever system of reeving was employed, the larger the diameter of the sheaves used the longer would be the life of the ropes. In these diagrams only one rope was indicated, but it must be understood that in passenger lift practice from four to six or more ropes running side by side were employed.

In the concluding part of the paper the lecturer outlined a number of experiments he had made on the effect of various forms and for lift acceleration on the passenger.

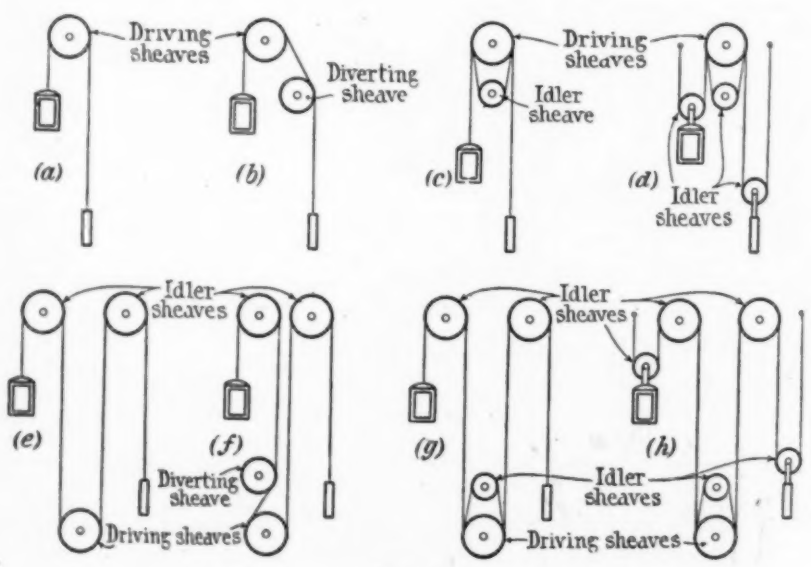


FIG. 4.

Trade Facilities Bill.

During the Committee stage of the Trade Facilities Bill, Mr. Sunlight moved an amendment to provide that State guarantees in regard to loans under the Bill might be granted on an undertaking of a co-operative society or trade union to advance deposits for house purchase for its members. He said that so long as the Nation's credit was to be used to encourage employment at home, he saw no reason why certain of the credits might not be earmarked to finance our own workpeople to enable them to obtain the deposit money with which to purchase their own houses. He considered that the organisation of trade unions and co-operative societies provided the machinery by which working people could be assisted to purchase their houses. He urged the amendment as a possible solution of the housing problem and he suggested that a credit of £10,000,000 should be ear-marked for the advancing of deposit money to those who desired to buy their houses. By these means he contended that in a very short time we should have £100,000,000 worth of houses being built.

The Government, however, were unable to accept the amendment, which was negatived.

Cost of Bricks.

In the House of Commons, Mr. Paling asked the Minister of Health whether he was aware that in South Yorkshire the cost of bricks had increased during the last few weeks by 10s. per thousand, one increase of 5s. about six weeks ago and another of 5s. last week, and that the cost of lime had also increased by 3s. per ton; and whether he would take steps to prevent these continual increases in the cost of building materials.

Mr. Wheatley said he was aware that in certain parts of Yorkshire increases had taken place in the price of bricks, though he could not, without further inquiry, accept the figures in the question as accurate. He was not aware that there had been any general increase in cost of lime, although he was informed that there were instances of increase in price in certain parts of Yorkshire. Such increases in prices as had been recorded were at present being investigated by the Committee on Prices of Building Materials and the question of any further steps that might be necessary to prevent increases in cost of building materials would be dealt with in connection with the Government's housing proposals.

THE BUILDING TRADES EXHIBITION

CEMENT CONGRESS

A NUMBER of papers on the manufacture and use of cement were read at a Congress arranged at Olympia this week by the Institution of Structural Engineers, and from those of more importance to our readers we take the following :

Structural Steelwork reinforced with Concrete.

Mr. Ewart S. Andrews, B.Sc., A.M.Inst.C.E., in a paper on this subject, said in recent years structural steelwork and reinforced concrete had progressed upon somewhat parallel lines, and comparatively little had been done in combining the two methods of construction. This was probably due to the fact that the two methods of construction had been regarded as competitors, and the specialists in each of the methods had concentrated upon demonstrating the advantages of the one compared with those of the other

In actual practice with structural steelwork the steel was very often encased in concrete to increase its fire-resisting properties and to minimise the dangers resulting from rusting. Such encased steelwork was, however, almost invariably designed so as to be capable of carrying the loading without any allowance whatever for the additional strength of the steelwork due to its casing of concrete.

From the results of experimental investigations which were already available it was quite clear that the strength of structural steelwork could be increased very considerably by means of the concrete casing, and it would appear that considerable advantages in practice could be obtained by combining structural steelwork with concrete casing in such a manner that the strengthening effect of the concrete upon the steel could be allowed for in the design and advantage still be taken of the protective qualities of the concrete

Although the proposed method of constructing by means of comparatively light structural steelwork encased in concrete had not been developed to any very large extent there would appear to be several advantages to be derived from its adoption. In the first place the light structural steel members could be made strong enough to support the dead weight of the structure and the necessary centering so that erection could proceed very much more quickly than in the case of ordinary reinforced concrete work, because it was no longer necessary to wait for the concrete to set before proceeding with the next stage. Considerable economies could also be effected in the centering because the concreting need not proceed quite so quickly, and the dangers attendant upon striking centering comparatively quickly would be minimised.

Dealing first with the question of columns, a fair amount of test results were already available. In one set of tests, columns built up of angle bars at four corners connected together by diagonal bracing and by batten plates were tested both plain and filled with concrete, and the test results showed that at three months the filled columns were between 50 and 60 per cent. stronger than the plain steel columns.

In another series of tests carried out in the University of Illinois on the built-up section employed in the United States, and known as the "Gray" column, consisting of four pairs of angles back to back with batten plates between them at 16 in. centres, tests were made for the plain columns and for various forms of concrete casings. Here again the increase in strength was quite considerable, and was approximately 40 per cent. increase in the case in which the concrete just filled in the spaces between the steel.

Tests were also made upon columns of the same form which were (*a*) provided with a plain fireproofing external casing 2 in. thick, (*b*) provided with a fireproof external casing 2 in. thick with wire spiralled around the steel section.

The plain fireproofed columns failed at a load almost exactly 50 per cent. that at which the plain steel columns failed.

In the spirally-reinforced columns two types were tested, in one of which the spiral reinforcement was 0.75 per cent., the spiral reinforcement in the other being 1 per cent. These were taken up to the full loading capacity without failure, although two of those with 0.75 per cent. spiral failure were considered to be near failure at a load just about double that at which the plain steel column failed.

The authors of the paper describing these tests stated among their conclusions that: "A basis for design which seems rational is to determine the strength of the steel column by the use of the column formula for the slenderness ratio of the steel columns, and then to consider the concrete of the core section (without reference to the length of the column for any length ratio, say a length of 15 diameters) to have a stress value proportional to the strength of the plain concrete, say, two-thirds of the cube strength. A suitable factor of safety would, of course, be somewhere applied."

These tests were made at 60 days, and at the end of six months the strength of the encased columns would clearly have increased considerably further with the increased strength of the concrete.

From these figures it was clear that a considerable increase in strength of a structural steel column might be expected to accrue from the fireproof casing with which it was surrounded, and that it would be worth while to pursue the subject farther to analyse additional test results that might be available with a view to arriving at a rational basis for practical design.

Coming to the question of beams it would be found that considerable increase in strength was given by the concrete casing. It had been the practice for some time of some designers to design the beams of an ordinary filler beam concrete floor upon a working stress of 10 tons per sq. in. in place of 7.5 tons per sq. in. as employed in ordinary design; others had followed the practice of designing filler beam floors by means of the formulæ resulting from the theory of reinforced concrete beams in which the area of the reinforcement was relatively high.

The results had recently become available of some extremely valuable tests made by Professors McKay, Gillespie and Lelnan for the Steel Fabricators' Section of the Canadian Manufacturers' Association, upon the strength of steel beams encased in concrete.

In these tests 10 in. steel beams 16 ft. long and 5 ft. apart were first tested plain by loading them and measuring the stresses in the flanges by means of extensometers. The first load placed upon the beams was the load equal to the dead weight of the concrete floor system and casing which it was intended later to cast between and around the steel beams. The next load was that calculated to produce a maximum stress of 16,000 lb. per sq. in. in the steel and corresponded to the combined dead and superimposed load for which the floor was designed. This designed load was 185 lb. per sq. ft. of floor area, and the test results for the plain steel agreed extremely well with the results obtained from the ordinary beam theory. A reinforced concrete floor slab of 1 : 2 : 4 concrete was then cast on the beams together with a casing of usual proportions, and after the concrete had set fresh values were taken of the stresses in the flanges of the beams. The stress in this case was bound to be in almost exact agreement with the stress previously found for the same load, and one could infer from this the interesting fact that with this form of construction there would be no compression stress in the concrete itself in the direction of the beams due to its own weight, the explanation apparently being that the resultant deflection occurred before the concrete had set and was entirely taken up in the beam.

Tests were then made to find the stresses in the beam for various superimposed loads placed upon the floor, and it was found that for the designed load of 185 lb. per sq. ft. this stress in the beam was only 9,530 lb. per sq. in. instead of 16,000 lb. per sq. in., and that in order to produce a stress in the steel of 16,000 lb. per sq. in. the inclusive load per sq. ft. had to be increased to 330 lb. per sq. ft.

This meant that the encased beam was 80 per cent. stronger than its calculated value to produce the working stress. The tests were not continued to destruction in either case, but he had no doubt that if they had been, the comparative strengths at the ultimate load would have been very much the same as that at the safe working stress.

A calculation based upon treating the combined section as a reinforced concrete T-beam with a large section reinforcement gave a result almost midway between the design value for the ordinary steel beam and the value found in these tests. From this it followed that the ordinary assumption that the concrete contributed nothing to the resistance of tensile stresses was one that erred on the safe side.

A consideration of the results both for columns and beams indicated that the concrete casing had an important strengthening effect upon the steelwork, and that they might look for considerable economy in design by a combination of ordinary structural steelwork with concrete.

The age of the concrete at the date at which the tests were made was 23 days only, and there was every reason to believe that the construction would increase considerably in strength beyond the above amounts with increase in time.

He believed that there were great possibilities for improved construction to be obtained by a combination of structural steelwork with reinforced concrete. and that the present position in which structural steelwork was regarded as a rival of reinforced concrete was one which did not result in obtaining the most scientific combination of steel and concrete for constructional work.

Uniformity in Concrete.

In a paper entitled "The 'Modulus' of Density of Concrete as a Means of Maintaining Uniformity throughout," Mr. A. S. Grunspan, B.Sc., A.C.G.I., A.M.Inst.C.E., said the question of density when relating to concrete for all purposes, and particularly when the concrete was to withstand a hydrostatic pressure, was all important to the engineer, and hence it was no wonder that he was tempted to administer "patent medicines" to the concrete when he had doubts as regarded its "bodily fitness." In order to procure good and dense concrete it was essential to pay attention to the degree of cleanliness of the aggregates, their grading, the chemical and mechanical properties of the cement, the mixing of the aggregates with the cement, and last, but not least, the amount of water to produce complete binding.

No matter how good a concrete might be obtained by the exercise of the above mentioned measures, one often heard that still better results would be achieved by the use of such and such an admixture, of which there appeared to be plenty on the market, and the bulk of which, by the way, left him very cold.

It appeared to him that from the known percentage of voids in the coarse material, sand, cement and the known amount of water used, a function termed the modulus of density of the concrete could be derived. This function would give an insight into the concrete's closeness of texture, and should enable them to adjust a mixture analytically rather than empirically.

It was generally assumed that the sand was so specified as to fill the voids of the coarse

material chosen for the work, and the binder (cement plus water) filled the voids of the cement. If, therefore, they began with known materials containing a known percentage of voids, and finished with a conglomerate in which the binder had a well-defined volume, the ratio of the volume of binding material (*i.e.*, the granular volume or the volume of the cement free from voids plus the volume of water) to the volume of voids which the binder had to fill, should give an insight into the density of the concrete, and that ratio he called the modulus of density.

It appeared that the density modulus was directly proportional to the amount of cementitious material used in a given mixture and inversely proportional to the percentage of voids in the coarse material, and consequently the percentage of voids in the sand.

It should not be misunderstood that by increasing the amount of water the amount of cementitious material and thereby the density modulus would be increased. The amount of water to be used was better understood nowadays, and no one with any knowledge of concrete would use more water than could possibly be helped. It remained, therefore, either to increase the amount of cement or choose an aggregate possessing a smaller percentage of voids; the latter, if at all possible, was to be preferred, for too fat a concrete was attended by many risks which it was advisable to avoid.

Engineers in the past used lime as an admixture to the cement in order to obtain a denser concrete. To some extent that practice was still being followed. The addition of lime, however, meant a reduction in the strength of the concrete, and could not on that score be always recommended. It was consequently very important that the nature and property of an admixture singly and in association with the cement be carefully studied by an expert before its use was decided upon.

The properties to be looked for after being satisfied that the admixture was free from elements likely to react adversely on the concrete, was the capacity to fix the calcium hydroxide, liberated from free lime which the cement or even the aggregates contain when the cement hydrated on setting.

The calcium hydroxide, particularly in concretes exposed to sea action, or when under the action of highly volatile spirits and light oils, was a source of weakness, and any "reagent" which was likely to absorb it was worthy of consideration.

It was known that if an active siliceous material were added to the cement it combined with the free lime, and produced a cementitious material instead of calcium hydroxide. Tests had been carried out on concrete in which trass had been embodied with good results.

It seemed to be quite common practice when specifying a mixture for a given concrete to stipulate that the sand and aggregate be well graded, without any reference as to the maximum percentage of voids the aggregate was to contain. It was obviously wrong to specify a mixture before the aggregates were settled on and chosen. The most obvious thing to do was to determine as accurately as possible the percentage of voids of the sand and coarse material each time a fresh consignment reached the work. From the specified mixture it could then be ascertained whether or not the mixture gave the same density modulus and the specifications varied accordingly.

Setting Time of Portland Cement.

"Some Disturbing Factors in Cement Setting" was the title of a paper by Mr. H. K. G. Bamber, who said in the course of his experience in the cement industry he had found that the factor in the use of cement least understood, and productive of the most difficulty, and sometimes disappointment, to the user, was the property which cement possessed—in combination with water—of consolidating itself into a permanent rock-like mass, enlocking in the process any materials with which it was in contact and which was not chemically repellent.

It should be obvious to all users of cement that the time limits of this process of consolidation, generally known as "setting," must be outside the time limit required for the sum of the mechanical operations employed for properly mixing the cement and water with the aggregates to be used, and placing the resultant plastic mass into its required station, otherwise the crystallisation constituting the setting would be interfered with or perhaps destroyed.

In the preparation of concrete the fact should never be overlooked that the binding material, *i.e.*, Portland cement, before use, in its dry state, was chemically active and in a state of unequilibrium until the requisite quantity of water was added and absorbed to encourage the chemical changes and combinations with establishment of equilibrium resulting in setting, the progressive processes of which must not be disturbed.

Much of the trouble which arose from time to time in the hands of some consumers in connection with the use of this material was the result of the failure to appreciate that Portland cement although in itself a completely manufactured material, was really in its dry condition, as sold, an unstable chemical compound always seeking to satisfy itself by absorption with water, which it proceeded to do with the greatest avidity as and when opportunity accidentally or intentionally was afforded. Unless cement possessed this property it could not fulfil the purpose of its creation, and, therefore, its power to act in such manner must not be judged to its detriment.

He had known a case where an aggregate which appeared under ordinary examination to be suitable in all respects, turned out to be useless with one high-grade Portland cement, and satisfactory with another; both being well-known brands of the highest quality, testing far in excess of the British Standard Specification requirements. Chemical and physical examination failed to detect the disturbing element which, while permitting one cement to set satisfactorily, absolutely destroyed the setting properties of the other, a change of aggregate resulting in both cements being satisfactory. Such an experience is an indication to the engineer of the importance of thorough investigation into the character of concrete aggregates proposed to be used before actual work was commenced. It was always advisable to test the aggregates to be employed especially if not obtained from recognised and approved sources, with the brand of cement intended to be used.

At all times the best results were likely to be obtained by the use of slow setting cement. It was a fallacy to suppose that greater strength was obtained at early dates by the use of moderately quick setting cements, which were always more liable to be injured if the work were not carried out with the greatest expedition. The greatest safeguard the engineer possessed was to obtain slow-setting cement from absolutely reliable sources, and, when it came into his possession or under his supervision, to protect it with all reasonable care against atmospheric influences, regulating constructional operations so that the time taken for their complete performance was not extended beyond the time when the cement commenced to set, which might vary from day to day, depending upon the temperature and hygroscopic condition of the atmosphere.

Portland Cement in Sea Water.

Mr F. E. Wentworth-Sheilds, O.B.E., M.Inst.C.E., speaking on "Portland Cement in Sea Water," said the experts who had studied the question of how to prevent the decomposition of cement concrete and mortars by sea-water might be roughly divided into two opposite camps, namely, those who had sought to protect the cement by altering its chemical composition or adding material which should affect the chemical actions involved, and, on the other hand, those who had sought to protect the concrete by preventing the admission of the sea-water into the bulk of the material; in other words, by making it highly impermeable.

As regarded the chemical school, the earliest and perhaps the most famous was the great French chemist Vicat, although a very large amount of valuable research had been carried out since his time, particularly in France and Germany. Vicat first explained the chemical action of sea-water on cement and laid down rules for its composition in order to secure its stability. He pointed out that lime was the most vulnerable ingredient in cement, and that there should be only a sufficient quantity present to combine with the other salts. Since his time many attempts had been made to vary the ingredients so as to produce a cement which would be more permanent. It seemed to be generally assumed to-day that cement which complied with the standard specifications of Great Britain and other countries was suitable for use in sea-water, but this view was sometimes contested.

Several materials had been suggested as additions to Portland cement for the purpose of increasing its chemical stability in sea-water. Of those by far the best known and most used is pozzolana or trass, which was much favoured by harbour engineers in Europe. It had not been very popular in Great Britain, although Smeaton used it in conjunction with lime to make his mortar for the Eddystone Lighthouse in 1756. Apparently its virtue consisted in the fact that it combined with the lime which is freed during the process of setting of Portland cement, and thus prevented the formation of the dangerous sulphate of lime. Although trass occurred in many different places, it was by no means all equally suitable for this purpose.

There were a large number of experts who considered that modern Portland cement would make a concrete which was very durable in sea-water, provided the concrete be made in such a way as to offer a high resistance to the passage of the water into its mass. If the concrete was highly impermeable it was claimed that what little sea-water penetrated could do no harm, as the solid products of the chemical action involved tend to choke up the pores of the concrete and make it the more impermeable. Whereas in the case of a porous concrete the products got washed out leaving fresh surfaces to be attacked by a fresh supply of sea-water.

It was well to bear in mind that there was no such thing as an absolutely impermeable concrete. All one could hope to do was to reduce the size and proportion of voids, and thus to make the resistance to the passage of sea-water as great as possible. We had, however, at least certain conclusions on the matter. First the mixture must be rich in cement. Any concrete containing mortar poorer than 1.2 was likely to be useless in cases where sea-action was feared. The stones and sand should be well graded, *i.e.*, they should vary in size from coarse to fine, and at all costs a large proportion of fine sand was to be avoided. The concrete should be well mixed by a good machine. The proportion of water should be carefully determined as either an excess or defect of water when gauging was liable to produce porous concrete. Pouring concrete under water should be avoided, as concrete moulded in this way was of doubtful quality and very permeable.

It had been suggested that denser concretes would be produced by the use of special cements, but he had met with no experiments which was conclusive on this point. Again, many materials were on the market for which it was claimed that if mixed with concrete or mortar they greatly decreased its permeability. An elaborate investigation was made into a number of such materials by the American Bureau of Standards in 1911. It tended to show that the addition of such materials was of little use in the case of rich mixtures, and that some of them decreased the strength of the mortar.

They still wanted a really good test for impermeability. Several methods had been used, such as determining the actual volumes of materials used in a cubic unit of concrete, and hence the proportion of voids, or again measuring the quantity of water which could be forced into or through a slab of known dimensions in a unit of time. But these methods were slow and did not tell exactly what was wanted. If they could test for permeability as easily as they could test for strength and compare that test with a standard, it would not be long before they should be able to use various materials to make a concrete which would offer the greatest possible resistance to the destructive action of sea-water.

THE ARCHITECTS' AND SURVEYORS' ASSISTANTS' PROFESSIONAL UNION

A CONVENTION of delegates of the Architects' and Surveyors' Assistants' Professional Union was held at the Building Exhibition, Olympia, on April 19 and 21. Mr. J. W. Denington, Lic.R.I.B.A., President of the Architects' and Surveyors' Assistants' Professional Union, presided.

The following resolution was passed at the opening of the first session :—

"That this National Convention of delegates approves of the Executive Council's action in setting up a benevolent fund for the benefit of members as laid down in the rules governing that fund; further, that it calls upon all branches, at the discretion of their committees, to devote profits from social events to this fund" for the purpose of founding a benevolent fund for architects' and surveyors' and builders' technical assistants.

The General Secretary, Mr. John Mitchell, said existing funds, with one notable exception, were useless so far as the general assistant in the professions was concerned. Instead of being a fund which waited until desperate application on the part of those entitled to its help was necessary, as was so common amongst benevolent funds, he hoped that this fund would go forward with its good work in the homes and lives of assistants in needy circumstances, and seize every opportunity to prosecute the good work for which it was intended. Its objects were unique: besides including for the ordinary contingencies of accident, distress, illness or sudden emergency, grants to widows and orphans, the endowments and maintenance of rest homes for members and the securing of benefits from sanatoria and convalescent homes and similar institutions, it proposed to grant temporary loans to assist the younger members in following up the professions. It was difficult to estimate how many young architects and surveyors had been prevented from attaining the full maturity of their activities through the lack of capital to buy books and materials for study. Membership of the fund was divided into "donors" and "life members," and every member of the Union was entitled to relief from the fund. Before any public action had been taken the sum of about £200 had already been collected; one member of the Union had given £100.

An important report was presented by the Executive Council of the Union dealing with the overcrowding and educational facilities prevalent in the architectural and surveying professions. Its chief points dealt with the large numbers of young men entering these professions. In Aberdeen and Glasgow it was found from statistics that there was an excess of learners over requirements of 335 per cent. and 416 per cent. respectively. Throughout the country it was found that the pupil system, although moribund in London and Liverpool, exceeded the training undertaken by schools by 5 to 1. In a large town in S.W. England 22 architects were engaged as principals; there were 15 paid assistants and 16 premium-paying pupils. No statistics dealing with this side of professional employment had previously been obtained. The report also pointed out that from the information supplied the schools must be regarded as a source of overcrowding equally with the apprenticeship system. It urged that a greater control over the evening classes should be obtained by the professional institutes. Another disturbing factor was the very large number of men who have entered the professions without any training whatsoever. In the architectural profession the percentage was approximately 11.8 and in the surveying profession about 1.6 per cent. The report suggested that a practical way out of the difficulty would be by the construction of joint boards throughout the country with representatives of the Royal Institute of British Architects, the Allied Societies and the Surveyors' Institution, &c., and the Architects' and Surveyors' Assistants' Professional Union. The Convention approved of the report in its entirety.

A motion was passed which approved of the alteration of the rules of the Union to include for a Provident Section. This would guarantee to members £1 per week per share during a period of unemployment and £1 per week per share during sickness. At the end of each year the surplus remaining in the fund would be distributed equally between all members in proportion to their holding. These provisions would mean much to the assistant of to-day who seldom remained in a position for any long period owing to the type of work and employment. He was sometimes confronted with a short spell of unemployment between the termination of one situation and his obtaining another.

The National Convention instructed the Executive Council to proceed with the setting-up of divisional councils all over England and Wales and similar in character to those at present in existence in Scotland. Those councils to consist of delegates representing the branches in their area and to advise the Executive Council of the best means of forwarding the work of the Union and furthering the interests of assistants in their division.

The following motion was passed relative to the Joint Committee set up by the Union and the R.I.B.A. to thoroughly explore the questions of overcrowding in the professions, the principle of minimum salaries for assistants and the direct representation of the Union on the Council of the R.I.B.A. :—

"That this National Convention of delegates notes with satisfaction the assurance given to the Union that in any future steps taken by the Council of the R.I.B.A. the views of the Union will receive careful consideration, further that it approves of the pledges given the Union by that Council that joint inquiries will be made into the questions of overcrowding, minimum salaries, and direct representation of the Union on the R.I.B.A. Council, and re-affirms its strong belief that only by the satisfactory settlement of these questions can the future well-being of the profession be assured."

Owing to the great outcry by all classes of professional assistants who were members of learned institutions and who were not allowed to deduct (under Schedule E) the subscriptions paid thereto from their income-tax assessments unless this payment was an indispensable condition of their employment, the grievance being that such proof of its necessity was not required by employers (under Schedule D).

"That this National Convention of delegates strongly protests to the Chancellor of the Exchequer against the ruling of the Board of Inland Revenue that employees who are members of learned Institutions cannot deduct (under Schedule E) subscriptions paid thereto from their income-tax assessments unless as an indispensable condition of the tenure of their employment as employers assessed under Schedule D and demands that steps be taken to remove this disqualification on the employee and such amendment to the law as may be necessary to this end be introduced immediately into the House of Commons."

The resolution it was hoped would draw the attention of the Government to an instance which certainly ought to be remedied, there being no justification for its adoption in the one case and its retention in the other.

A further motion on income-tax was proposed by the Manchester Branch and the Executive Council, and was carried unanimously :—

"That representations be made to the Chancellor of the Exchequer with a view to obtaining a rebate off the income-tax for subscriptions paid to the Union and an allowance for the provision of technical books and the maintenance of instruments."

The following motion regarding minimum salaries was carried :—

"That this National Convention of delegates approves of the action of the Executive Council, on December 31, 1922, in amending the scales of basic minimum salaries, and approves those stated in the pamphlet circulated and appended to this resolution" :—

Minimum Salaries.

(Figures based on the Cost of Living at December 31, 1922.)

19 years of age and over .. £3 8s. 0d. per week.
26 years of age and over .. £5 11s. 0d. per week.

The Union has decided that the salaries of all professional and technical assistants covered within its membership should be computed from the following July 1914 basis, viz. : £2 per week at 19 years of age, £3 10s. per week at 26 years of age. To these is to be added temporary increment according to the Civil Service Award at

"The Builder" Stand at Olympia.

present operating, viz.: 130 per cent. on the first £91 5s. per annum, 60 per cent. on the next £108 15s. per annum, *less* 1-26th of the total temporary increment for every five points fall in the Board of Trade index of the cost of living below 130 per cent. above the July 1914 standard; thus, if the cost of living is 80 per cent. above that of July 1914, 10-26ths of the total temporary increment is to be deducted. Richer experience, unusual talent and higher office responsibility, however, entitle their owner to equivalent extra remuneration. This should in all cases be computed and added to the above minima, which only represent the ordinary grades of service and are in no case meant or desired to fix a standard. Any doubt as to the precise assessment of a member's salary under this heading should be followed by an inquiry to the General Secretary of the Union. The co-operation of all members is invited to establish and maintain these scales.

A motion of the Manchester Branch that the Union should take immediate steps to affiliate to the National Federation of Building Trades Operatives was fully discussed and was lost by 275 votes to 75.

The Executive Council was instructed to enter into negotiations with the National Federation of Building Trades Employers, the Royal Institute of British Architects, the Society of Architects, and similar associations to secure recognition of the Union's scale of wages—this was carried unanimously.

Motions for the automatic expulsion of members from the Union and the paying of an entrance fee of £2 to be paid by members joining for the first time and members rejoining were withdrawn in view of the opposition of the Executive Council.

The Convention further instructed the Executive Council to consider the advisability of obtaining the services of a full time organiser for furthering the interests of the Union.

PLAYS AND PLAYHOUSES.

A lecture was given under the auspices of the Architects' and Surveyors' Assistants' Professional Union at the Building Exhibition on April 14 by Miss Amelia Defries and Mr. T. P. Bennett, F.R.I.B.A., Head of the architectural department, Northern Polytechnic, London, on "Plays and Playhouses."

Miss Defries having dealt with the question of a National Theatre, Mr. Bennett, speaking from the architect's point of view, said that the problem of the theatre was one of the greatest antiquity. If one inquired into the subject it would be found that in the Byzantine period of architecture mosaics were designed and shown publicly for the education of the people, and that in mediæval times the theatre might be said to resemble one of their modern halls in an incompleted state. So far as the problem of the auditorium was concerned it was easy to understand. The three primary considerations were that the audience should see the stage clearly, hear well, and should have adequate seating accommodation. One of the most difficult problems confronting the architect was the question of the sides, where the audience heard, although hearing better they saw less, whilst those directly in front of the stage saw more and heard less. This brought them to the subject of acoustics and upon this particular subject there was no actual formula which could be worked upon and adhered to by the architect. For instance, the scenery absorbed the acoustics, and therefore various types of scenery meant various degrees of acoustics; again the movements of air and temperature affected them. There was little doubt that a great amount of research work was required upon this all-important subject in order that they might have definite and clearly understood views which would give dependable results. The two general dangers to be contended with in arranging the materials used in the interior were those of absorption and echo, and it was interesting to note the effect which could be arranged for their judicious selection. The following list gave various materials ranging from hard and resilient to soft:—Marble, hard plaster, plaster, wood, silk, and then again to the hard material of heavy tapestries.

The decoration of theatres could very well start with the stage opening and it was as well to point out that very few architects seized the chance of framing the opening in a suitable manner. One of the troubles to be contended with in giving attention to decorations was the bulky arrangements necessary to provide for the constant supply of fresh air and ventilation. One interesting problem which had been more or less satisfactorily solved was that of fireproofing the building. In order to make the auditorium as fireproof as possible the stage roof was made inflammable in order to permit of the fire spreading to the stage roof

The building of the theatre was, Mr. Bennett concluded, to his mind, one of the most important and interesting tasks which could fall to the lot of an architect.

Mr. Chas. McLachlan thanked the lecturers for their most interesting contribution on this subject.

"OLD WESTMINSTER" & ITS HISTORIC BUILDINGS

THE second of two lantern lectures was given this week by Mr. Herbert A. Cox, F.C.A., at the Building Exhibition on the historic buildings of the Palace of Westminster descriptive of those which have disappeared and also of those remaining. On the panorama views showing the precincts of the Abbey in the sixteenth century, attention was called to the west gate, built by Edward III, in which was the Almonry; it was in this gateway that Caxton set up the first printing press in England in 1482, and later when it was a prison the royalist Lovelace there wrote when confined:—

> "Stone walls do not a prison make,
> Nor iron bars a cage;
> Minds innocent and quiet take
> That for an hermitage."

The principal buildings of the Palace, viz., Prince's Chamber, Old Parliament Chamber (House of Lords), Painted Chamber, Court of Requests (House of Lords, 1823-34), St. Stephen's Chapel and College of St. Stephen's were briefly described, having been dealt with in detail at the first lecture. The origin of the fire of 1834 was narrated and a specimen of a wooden tally shown. It was explained that the tally system having been discontinued in 1826, an order for the destruction of the vast accumulation of tallies led to the outbreak of the fire which consumed the chambers used by both the Upper House and the Commons. Views were shown of the ruins of St. Stephen's Hall and the Cloisters, together with the restoration of the latter.

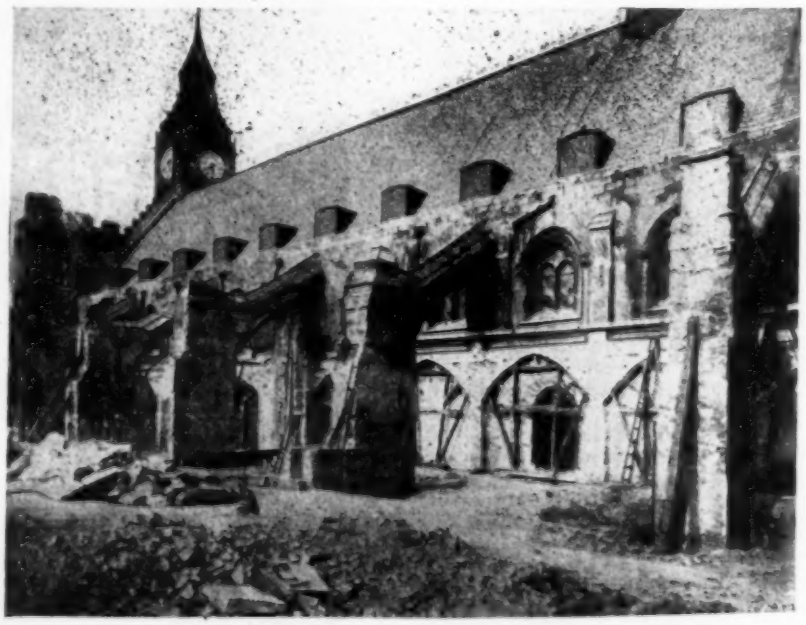
Westminster Hall was illustrated by several photos and drawings which have appeared in *The Builder* with descriptive articles on the restoration of the roof (see January 5 and November 16, 1923). Two views were also shown (1) of the north side with the flanking towers and magnificent porch built by Richard II (the time was before the restoration of 1820), and (2) of the west side in 1882, when the old Exchequer buildings were cleared away (on the opening of the new Law Courts) revealing the six buttresses erected by Richard II, but now almost entirely hidden by modern offices (see photograph on this page). Illustrations depicting historic scenes, which took place in Westminster Hall, were also given.

Architects at the Building Exhibition.

At the Building Exhibition several hundred members of the Royal Institute of British Architects, the Architectural Association, and the Society of Architects met last week to inspect the exhibits.

Waterproof Sandpaper.

The sole British concessionaires of "Wetordry" waterproof sandpaper, Messrs. R. W. Greeff & Co., Ltd., state that this material is making rapid strides amongst all classes of painters and decorators who have been quick to realise and appreciate its advantages. Careful experiments made by a large number of users of the now well-known "Wetordry" brand of waterproof sandpaper under widely varying conditions show invariably a considerable saving both in material and labour over dry rubbing down with ordinary sandpaper. It has been proved that the breathing of dust is one of the chief causes of sickness among painters. This can be avoided by rubbing down wet. "Wetordry" waterproof sandpaper is a material which can be used on any kind of job. The point in regard to ease of working is that rubbing down wet, the sandpaper cuts the surface with a minimum of effort; all attention can be given to getting a good finish without undue fatigue. Also the water reduces scratching. "Wetordry" can be rinsed in water from time to time to remove accumulated paint, and thus be used over and over again. It lasts, it is claimed, eight times as long as dry sandpaper.



Westminster Hall, West View.
[From a photograph taken in 1882.]

THE WEEK IN PARLIAMENT

WESTMINSTER, *Wednesday.*

MR. WHEATLEY, in making his promised statement on housing, said that the broad results under the 1923 Act up to April 1 were as follows:—For the eight months in which the Act had been in operation 8,140 houses had been completed, 30,405 houses were under construction, while the contracts made or certificates issued by local authorities covered a further 37,846 houses. Of the 38,545 houses which had been completed or were in course of construction, more than half he had reason to believe were to be for sale. It was well to bear in mind that if an average annual output of probably 100,000 houses was required to meet the normal increase of population and the annual depreciation of houses of a similar kind, when the output was below that number the accumulated shortage was not being reduced.

The Government had received an extraordinarily valuable report, and he desired to express the thanks of the Government to all those in the industry who spent so much time and skill in framing an industrial policy to meet the national needs. The main point to be noted in the report was that the industry had come to the conclusion that, on the basis of a long-term programme of house-building, it could secure such an augmentation of the building labour of the country as would ensure a production of houses which would go far to meet the essential needs of not only keeping pace with the normal demand, but of making good the present shortage and doing something effective to get rid of slum conditions. Without pledging themselves to the details of all the recommendations in the report, the Government were prepared to accept the principle of a long programme, and were hopeful that this would command the support of all parties in the House. The representatives of the building industry authorised him to state that they would be prepared to attend non-party meetings or party meetings of the House interested in housing and explain the report and answer questions.

It had been a fixed principle of all recent legislation in aiming at a solution of the housing problem that the matter should be tackled on the basis of a partnership between the Government and the local authorities. Accordingly, as soon as the industry was in a position to report as to what was practicable, he summoned a conference of the local authorities' associations in Great Britain. He met their representatives on April 15, and explained to them the principles which it seemed necessary to observe. These he might sum up as follows:—The provision of houses in numbers sufficient to meet the needs he had described; the adoption of a long programme as a means of securing the necessary augmentation of the resources of the building industry; the provision of houses for letting at rents within the capacity of the workers. The local authorities undertook to form a Committee to consider these principles and to go into the necessary financial arrangements. He hoped to conclude the negotiations as soon as possible after the recess and to lay before the House the complete proposal.

Empty Houses.

Mr. Lorimer asked the Minister of Health if he had any information with reference to cases where houses were kept empty for the deliberate purpose of obtaining a high price for them.

Mr. Wheatley said that representations had been received from a number of local authorities calling attention to the fact that unoccupied houses were held for sale at enhanced prices, but detailed statistics on this point were not available.

Dispossession of Tenants.

Sir C. Cayzer asked the Minister whether he was aware that some landlords were dispossessing tenants on the assertion that they needed the houses for personal occupation and then, when the tenants had left, were putting the structures up for sale with vacant possession; and whether, seeing that this was absolutely opposed to the spirit of the law, he would, in the event of such cases being submitted to him, take steps to make such action illegal.

Mr. Wheatley said that provision was already made to meet cases of this kind. Under the existing Act the court could require the landlord to pay compensation to the tenant for loss or damage sustained if possession of a house was obtained by misrepresentation, and to direct that the house in question should not be decontrolled.

Bricklayers' Average Work.

Mr. E. Simon asked the Minister whether he was aware that, in the Report on a housing programme (Cmd. 2104), the estimate of the labour required was based on a bricklayer laying 300 bricks a day, whereas it had recently been estimated that the average number laid by each bricklayer in the Manchester housing contract was 600 daily; and was he prepared to recommend acceptance for 15 years of a scheme based on this output.

Mr. Wheatley said he was not aware that the estimate contained in the Report referred to was based on a bricklayer laying 300 bricks a day, and he did not know on what the hon. Member was basing his statement. He would, of course, be aware that a bricklayer performed other duties besides the actual laying of bricks.

A Newspaper Interview.

Sir K. Wood asked whether the statement of the Chancellor of the Exchequer contributed to an American paper on the financial arrangements of the housing scheme represented the Government's policy and programme.

Mr. Snowden said that the statement made by him to an American newspaper reported in British newspapers was based on declarations made in the House as to the estimated costs of houses and the rents. The deductions from those declarations as to the general lines of the scheme were obvious and depended on the cost of the houses and the rents at which they were let coming within the estimates indicated in the House and in relation to previous subsidies. The amount of the subsidy to be borne by the State and the local authorities was obviously a matter for discussion between the Government and the local authorities.

Houses Completed.

Mr. Wheatley informed Mr. E. Simon that the number of houses completed during the years 1921, 1922, and 1923 under the Housing, Town-Planning, &c., Act, 1919, were 68,255, 74,769 and 15,679 respectively. Under the Housing (Additional Powers) Act, 1919, 18,414 houses were completed in 1921, and 14,230 in 1922. Under the Housing &c., Act, 1923, 3,506 houses were completed during 1923. Information as to the number of houses erected without State assistance during the three years in question was not available, but according to returns obtained from local authorities in England and Wales as to building by private enterprise without assistance from public funds it was estimated that over 39,000 houses of not more than £26 rateable value in the provinces and £35 in the Metropolitan Police districts, were completed during the year ended September 30, 1923. Some of these houses were no doubt larger than those provided under the Act of 1923.

Evictions.

The Liberal Prevention of Eviction Bill has passed the Committee stage. The principal clause provides that the existence of alternative accommodation shall not be a condition of an order or judgment on any of the grounds specified in paragraph (d) section 4 of the Rent and Mortgage Interest Restrictions Act, 1923:—"Where the landlord, or the husband or wife of the landlord became landlord before July 31, 1923, and the dwelling-house is reasonably required by him for occupation as a residence for himself, and the Court is satisfied that, having regard to the alternative accommodation available for landlord and tenant respectively, greater hardship as regards conditions of living would be caused by refusing to grant an order or judgment for possession than by granting it."

ARCHITECTS' AND BUILDERS' INQUIRY BUREAU

May we appeal to our correspondents to submit their queries on paper of a size easily filed, and written as legibly as possible, or better still, in typescript?—ED.

Glasgow Building Materials.

SIR,—I should be obliged with any information relating to the materials now used in Glasgow in the construction of (*a*) external walling (ashlar and dressings); (*b*) internal walls and partitions; (*c*) as to whether reliable facing and stock bricks are obtainable in the locality, and if they are at all likely to suit the climate or local taste if introduced into a building of any size in Glasgow or locality; and (*d*) prices generally, compared with London. J. H. H.

Asbestos Pantiling.

SIR,—Have any of your readers had experience of the use of asbestos pantiles? If so, I should be most glad to know whether they have found them satisfactory in use. I have a very excellent sample before me which should look very charming, but it appears very light, and one feels doubtful if such tiles would not be liable to lift in a high wind. The cost, however, is so low that it suggests a way of arriving at a very artistic finish to a cheap building.

ANXIOUS.

Houses in Blocks of Four.

SIR,—I notice that in blocks of four houses with a central passage way, some architects arrange the first floor party wall to stand over the centre of the passage way, while others plan the first floor interlocking, the party wall standing alternatively on one wall of the passage way or the other.

I should be interested to hear which method is considered the best and most economical, and no doubt some of your readers will be able to satisfy me upon the point.

HOUSING.

Gables to Pantiled Roofs.

SIR,—Can you inform me if it is possible to obtain right and left-hand pantiles without special making? If it is not possible, perhaps one of your readers with experience in this variety of tiling can advise me of the best treatment for the verges of a gable in a pantiled roof to avoid the one-sided appearance that would result if tiles all of one hand were used on both verges.

COTTAGE BUILDER.

Restoration of Old Cottages.

We have received a communication from a firm of manufacturers, stating that no one has, in reply to this query, suggested waterproof cement. They state defective damp courses are a common source of trouble, and the only way to cure, apart from cutting out for and inserting a new horizontal damp-proof course, is to strip off the plaster on the *inside* and give the wall a coat of cement mortar waterproofed with cement waterproofing powder. The room becomes dry as soon as the cement has set hard: no other method is so quick in effecting a cure. (When a horizontal damp course is inserted a long time elapses before the moisture left in the wall is drawn out by evaporation. Also it is expensive and there is a danger of settlement cracks.) When the cement is dry it is advisable to give a coat of absorptive limed plaster, because cement surfaces are more susceptible to condensation than plaster surfaces. If a cement finish is desired it is better to finish with a wood trowel (float) as condensation is less frequent upon a rough surface.

Fire Protection.

Mr. W. Daniel Smith, F.A.I., P.A.S.I., informs us that he is engaged in preparing a paper upon the subject of "Fire Protection in Building Construction," and would be glad if manufacturers of fire-resisting materials would send him particulars to 3, Castellain Mansions, Maida Vale, W.9.

THE BUILDING TRADE

LIME FOR CONSTRUCTIONAL PURPOSES

IN comparison with other industries, the lime industry in this country must be classed as backward, both in its manufacture and application. Although isolated cases of recent improvements in the method of production are not absent, there are still kilns in operation which are not far removed in their construction from those in use centuries ago. So far as the use of lime is concerned it might almost be said that the present age is less efficient than its predecessors, because it is claimed that the excellence of some of the Roman mortars, made twenty centuries ago and still in existence, is due to the extreme care exercised in the slaking of the lime and the preparation of the mortar, and it can hardly be claimed that extreme care is exercised in these operations nowadays.

With the present system there is no opportunity for the testing of lime such as occurs in connection with cement and other materials, and consequently it is difficult to specify a standard of quality for lime. Consequently, the value of lime is judged largely by its appearance, and under this standard a consignment of lime that is composed of large lumps is generally regarded as acceptable, while lime in smaller pieces or in dust form is looked upon with suspicion. There is no sound basis for such a judgment, because there is no reason why the large lumps of lime should be any better for building purposes than small pieces or dust.

Then, again, as all lime for building purposes requires slaking before it can be used, the lime which slakes with the least trouble is usually more favoured than a slower slaking lime. Such a distinction is in opposition to the merits of the material, because a slow-slaking lime indicates an argillaceous lime (sometimes termed grey lime) which for many purposes is more advantageous that the rapid-slaking white lime or fat lime. In this connection the question arises why the builder takes upon himself the slaking of lime when this operation could be performed by the manufacturer with more satisfactory results.

There are thus two defects of the lime industry (namely, the absence of a standard of quality and the marketing of a material only partly manufactured, *i.e.*, unslaked lime) which are the cause of many unsatisfactory circumstances and could be remedied by one change, namely, the sale of slaked lime, otherwise known as hydrated lime. In the United States practically the whole of the lime used by the builders is sold in the slaked condition, and similarly in France. In the former case the bulk of the lime is white lime, while in France the lime of commerce is usually argillaceous or grey lime. In both cases the tonnage sold is many times greater than the British output of lime, and it is therefore reasonable to assume that this method of marketing lime does not restrict its use.

Slaked or hydrated lime is sold as a dry powder packed in sacks. Its slaking is performed under strictly regulated conditions with the correct amount of water, and with proper methods there is no risk of unslaked material liable to "blow" being produced. For the white lime as produced in America mechanical hydrators are in use, which, while designed to save labour, are also effective in producing a perfectly slaked material. For the hydrated grey lime as produced in France slaking cannot be completed during the few minutes while the material passes through a mechanical hydrator, and storage for periods up to three weeks is needed before hydration is complete.

When hydrated lime is used it is possible to impose a standard of quality which can be based upon chemical composition and upon strength, and the user can therefore, by taking the necessary steps, ensure that he is receiving a pure material and one with the qualities he desires. At the present time in this country, owing to the preference for lime in large pieces which, as already stated, is an unsound basis of judgment, manufacturers have to adopt methods of manufacture which are unnecessarily costly, but if the use of hydrated lime became general it would be possible to economise in manufacture, and the consumer should thus have the advantage not only in receiving a standardised material capable of being tested, but a material at a lower price. In addition the user of lime would be saved the tedious process of slaking and would be free from the risks of incomplete slaking which can now arise under the haphazard conditions which frequently apply.

REPORT OF THE BUILDING COMMITTEE

MR. JOHN E. YERBURY writes:—

The report of the Building Committee on the Provision of Houses will no doubt attract the attention and criticism it deserves.

With 15 years' absolute control as to when, how, where, and at what price building should be carried out; with complete control with regard to the numbers who shall enter the trades connected with building; will the spirit of altruism govern those with this vast authority, and will they always think first of the public and be content with the wages and profits of the present competitive system? I wonder! The building industry, already sheltered against foreign competition, importing hardly anything except timber, is to be protected against competition at home by a 15 years' guarantee from the State of a continuous definite programme to provide 2½ million houses. If this is done, and the numbers allowed to enter the industry are restricted, what a lovely hospital for slack times will be found for the then united employer and worker in the building industry, joined in brotherly confidence by the merchants and manufacturers engaged in production for their service. But what of other industries, not sheltered, without guarantees for 15 days. Parliament can sanction expenditure on 2½ million houses easily enough, but how will it control cost? Prices have gone up before the ink of the report is dry.

The report says "houses are being built to-day at the lowest possible cost." But this cannot be true. "The lowest possible cost" is the actual cost plus fair wages for good output, and a fair profit to all concerned with service. I went to the Building Exhibition and there I met and talked with "all sorts and conditions of men" interested directly—or, like myself, indirectly—in the trade. I wanted to hear why building costs were so high that I couldn't get more work; and most certainly am not convinced that houses are being built to-day as cheaply as possible. The manufacturer says that coal (so largely used in production of building material) prices are daylight robbery and the railway freight charges iniquitous. The merchant says he could not reduce his prices as he would like to because he was in the combine and prices were fixed. The builder said the output of the men could be increased without sweating by anything from 25 per cent. to 50 per cent. The worker said the employer's one thought was to lower wages and increase profits. While the client said he would not built at the price, and I wondered if I should in that event get paid at all for my time, trouble, and advice.

To return to the report:—"Skilled men are fully occupied in most sections with current work and there is a pronounced shortage of labour in certain sections. Much labour and material used in commercial building is not transferable to house building and could not be easily diverted. There should not be any restriction of private or commercial work in the interest of the community."

Of course, there is truth in these statements, but somehow I seem to see the subconscious mind of the business man at work in the construction of the report, assisted by the—also subconscious—desire of the worker to protect himself regardless of his fellow-workers in other trades. I don't want to restrict anything, not even housing for 15 years; but why the restrictions of private work should be more against "the interest of the community" than the restriction of housing I can't quite see. The organised worker is quite right to see that his trade is not diluted in a panic, and so increased by special effort that it may be flooded, and its earning capacity lessened by the competition of dilutes overstocking the market in normal times. But will Parliament accept the recommendation that a Committee of interested persons shall say to the man in the street, "your son shall not enter any one of the dozen trades occupied in building"? I had always thought that the building trade employers, as a whole were great supporters of "private enterprise"; but will there be any need for enterprise under the scheme of the report?

The impression left with me is that, having made a great effort to apply itself to housing, the Committee subconsciously dealt with the position of those interested in the building industry, thinking it was the same thing, but proving all the time that it isn't. Housing is only a 10 per cent. interest.

The method for supply of labour again seems to show the working of the subconscious mind. To supply full demand for housing, restrict the number of houses; until the new supply is created when it will be put on housing (I wonder if it will release the best worker for commercial or luxury building, which must not be restricted lest the heavens fall) unless required for more profitable work. Although commercial work be slack, and housing contracts so pressing that higher wages are offered, the Government must allow the Committee to prevent a transfer lest the productive power of the builder of commercial works be crippled by the departure of his men to housing. Will the workers support their representatives in this recommendation?

If I may suggest some constructive criticism, I should say:—

(1) The Statutory Committee most certainly should have an outside Chairman, and he should be a lawyer of accepted ability.

(2) The Government, other industries concerned with building, and "the community" should be represented.

(3) The local authority and the community should be represented on the local branch committees.

(4) In the report on materials I notice "50,000 basins"—a bath in every house may be a necessity, but surely we might save the hard-pressed manufacturer from those 50,000 basins?

(5) If something must be restricted I think luxury buildings should be so restricted before housing.

(6) I fear the Committee having mentioned 50,000 houses will be content with two-thirds of that number if the demand for commercial buildings continues, as it probably will; and housing requirements must not act adversely to other sections of the industry. I would put it the other way, other work must not prevent the full 50,000 houses being provided.

(7) Manufacturers undertake that supplies shall be adequate, and increased production should lower prices. Adequate to the needs of the community or to the effortless production of the manufacturer? Let the State subsidise the provision of material for housing, and it will encourage effort on the part of private enterprise.

(8) The Committee have power not only to check increases, but also to insist upon decreases—otherwise is there likely to be a great effort on the part of the producer?

(9) There is to be an Act of Parliament to prevent anyone exploiting the situation. Will restrictions of output either of material or labour be exploiting the situation? If so, let us have a one clause Act of Parliament passed at once.

RENT RESTRICTION NIGHTMARE

WERE it not serious to the owners of property the recent Rent Restriction proceedings would be simply ludicrous. In the first instance a great outcry was made that tenants of working-class tenements were being evicted in large numbers, although they were unemployed, and the object of the Bill introduced by the Minister of Health was to deal with this alleged grievance and clauses 1 and 3 were the really material clauses, clause 2 being subsidiary and affecting tenants of all classes of restricted houses. Clause 1 would have placed the burden of maintaining the unemployed rent free upon the landlords, and as it proved incapable of amendment so as to make this a charge upon public funds it was rejected in the House of Commons. In the meantime, the facts which it was alleged made this clause essential, under analysis proved to a great degree fictional; the number of evictions of unemployed though difficult of absolute proof were shown to be very greatly exaggerated and in very many instances it was "the dog who was dying," *i.e.*, the small landlord, unable after great patience to get any rent and yet liable for the rates.

If it was impossible to provide a measure which should provide for the real hard cases of unemployed persons out of public funds the matter should surely have been allowed to drop with the death of the Bill introduced by the Minister of Health, but the Government, having brewed a storm in a teacup, were unwilling to let the subject drop, and they seized upon Mr. Simons' Bill, which is entitled a "Bill to Prevent Unreasonable Eviction of Tenants," as having an attractive title, and announced that they would amend it so as to carry out their intentions. This Bill, like some novels, relied upon its title to excite public interest, but the conclusion was disappointing, for it consisted of one clause which only modifies the grounds upon which a landlord can obtain possession.

Under the Act of 1923 section 4 subsection (1) paragraph iv, where a landlord became the landlord before June 30, 1922, he could obtain possession if he required his house for occupation as a residence for himself or for any son or daughter over 18 years of age without showing that alternative accommodation was available, but if he became landlord after that date by paragraph (v) the Court had to be satisfied that greater hardship would be caused by refusing to grant an order for judgment for possession than by granting it. In Committee the clause in Mr. Simons' Bill has been amended as follows: Paragraphs iv and v are repealed and one clause is substituted for them—"where the dwelling-house is reasonably required by the landlord for occupation as a residence for himself and the Court is satisfied that greater hardship—whether arising from the absence of alternative accommodation or otherwise—would be caused by refusing to grant an order than by granting it."

The effect of all this "pother" is curious. Paragraphs iv and v relate only to cases where the proof of the existence of alternative accommodation can be dispensed with, but it has recently been held that in making orders for possession under section 4 (1) (d) of the Act of 1923, the Court must take into consideration the position of both landlord and tenant under the general words, "and in any such case as aforesaid the Court considers it reasonable to make such order or give such judgment" (See Shrimpton *v.* Rabbits, *The Times*, April 3; and Williamson *v.* Pallant, *Weekly Notes*, April 12).

The effect of all the energies of the Government has been to introduce into paragraphs iv and v, which specifically only deal with the absence of the necessity of considering alternative accommodation, the very question they were framed to avoid, to "plentifully declaring" the discretion of the Court was laid down in the above cases, and to create a contradiction in terms between the new paragraph which is to take their place, and paragraph (d), which now deals with precisely identical circumstances.

RATES OF WAGES IN THE BUILDING TRADE.

The following are the rates of wages in the building trade in England and Wales. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur:—

	Masons.	Brick-layers.	C'p'ters, Joiners.	Plas-terers.	Slaters.	Plum-bers.	Painters.	Labourers.
Aberdare	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Accrington	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Altrincham	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Ashton-under-Lyne	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Barnsley	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Barrow-in-Furness	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Barry	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Bath	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Bedford	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Birkenhead	1/9	1/9	1/8½	1/9	1/9	1/9	1/8½	1/4
Birmingham	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Bishop Auckland	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Blackburn	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Blackpool	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Bolton	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Bournemouth	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Bradford	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Brentwood	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Bridgwater	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Brighton	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Bristol	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Burnley	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Burton-on-Trent	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Bury	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Cambridge	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Cardiff	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Chatham	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Chelmsford	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Cheltenham	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Chester	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Chesterfield	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Colchester	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Coventry	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Crewe	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Darlington	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Derby	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Doncaster	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Dudley	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Durham	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
E. Glam. (Mon. Vall.)	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Eastbourne	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Exeter	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/4½	1/1½
Folkestone	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Gloucester	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/4½	1/1½
Grantham	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Grays	1/8	1/8	1/8	1/8	1/8	1/8	1/7	1/3
Grimsby	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Great Yarmouth	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Guildford	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Halifax	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Harrogate	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Hartlepools	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Hastings	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Hereford	1/5	1/5	1/5	1/5	1/5	1/5	1/4	1/0½
Huddersfield	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Hull	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Ipswich	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Lancaster	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Leamington Spa	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Leeds	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Leicester	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Lichfield	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Lincoln	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Liverpool	1/9	1/9	1/8½	1/9	1/9	1/9	1/8½	1/4
Llanelly	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
London	1/8	1/8	1/8	1/8	1/8	1/8	1/7	1/3
Loughborough	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Luton	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Maidstone	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Manchester	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Mansfield	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Merthyr Tydfil	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Middlesbrough	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Newcastle-on-Tyne	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Newport, Mon.	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Northampton	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Norwich	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Nottingham	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Oakham	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Oldham	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Oxford	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Plymouth	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/5½	1/2
Pontypridd	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Portsmouth	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Preston	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Reading	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Rochdale	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Rochester	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Rugby	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
St. Albans	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
St. Helens	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Scarborough	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Sheffield	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Shrewsbury	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Southampton	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Southend-on-Sea	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Southport	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
South Shields	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Stockport	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Stockton-on-Tees	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Stoke-on-Trent	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Stroud	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4	1/0½
Sunderland	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Swansea	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Swindon	1/5	1/5	1/5	1/5	1/5	1/5	1/4	1/0½
Taunton	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Torquay	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Tunbridge Wells	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Wakefield	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Walsall	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Warrington	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
West Bromwich	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Wigan	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/0½
Windsor	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/2½
Wolverhampton	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/1½
Worcester	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/2½
York	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	

(For rates of wages in the Building Trade in Scotland, see page 701).

CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in; the name and address at the end is the person from whom or place where quantities, forms of tender, &c., may be obtained.

BUILDING AND PAINTING.

APRIL 26.—**Aberdare.**—SCHOOL.—For the erection of a new boys' school (to provide accommodation for 272 children). Messrs. Thomas Roderick & Sons, architects, Clifton-street, Aberdare. Deposit £2 2s.

APRIL 26.—**Breconshire.**—NEW MANSE.—For erecting for the Trustees of Pennel Calvinistic Methodist Church, Bwlch, a new manse at Bwlch, Breconshire. Mr. F. J. Hurley, architect, Crickhowell.

APRIL 26.—**Clynderwen (Pemb).**—PAINTING.—For painting at Gelly Mills, Clynderwen. The Office of Gelly Mills.

APRIL 26.—**Dukinfield.**—HOUSES.—Erection and completion of 10 pairs of parlour-type houses on land situate in Birch-lane, Dukinfield. Mr. Joseph Gibson, of Messrs. Lindley & Gibson, Market-avenue, Ashton-under-Lyne. Deposit £2 2s.

APRIL 26.—**Langholm.**—PAINTING.—For painter work and fencing of four blocks of two houses each, for T.C. Mr. J. B. Gladstone, architect, 100, High-street, Lockerbie. Deposit £1 1s.

APRIL 26.—**Newlyn.**—REPAIRS.—For various repairs to St. Peter's Church. Mr. H. Maddern, architect, 11, Morrab-road, Penzance.

APRIL 26.—**Pontycymmer (Glam).**—PAINTING AND REPAIRS.—For painting, inside and outside, the Pontycymmer Constitutional Club and carrying out all repairs required. Mr. H. Harding, secretary, Constitutional Club, Pontycymmer (Glam).

APRIL 26.—**Reigate.**—HOUSE.—Erection of a house in the Castlefield-road for the Baths Superintendent, for the T.C. Borough Surveyor, Municipal Buildings, Reigate.

APRIL 26.—**Trewoon.**—SUNDAY SCHOOL.—Erection of new Wesleyan Sunday School at Trewoon. Messrs. Andrew & Randall, architects, New Inn Chambers, St. Austell.

APRIL 28.—**Acton, W.3.**—PAINTING AND CONSTRUCTION.—(1) Painting and decorating houses on the East Acton Housing Estate, (2) the construction of a new bathroom, &c., at the Isolation Hospital, for the Borough of Acton. Municipal Offices, Acton, W.3.

APRIL 28.—**Andover.**—OFFICES, &C.—For the erection of new offices, folding partition, &c., at Andover (New-Street) Girls' and Infants' Council School, for the C.C. Mr. A. L. Roberts, County Architect, The Castle, Winchester. Deposit £1 1s. by cheque payable to Hants County Council and crossed "Lloyd's Bank, Ltd., Capital & Counties Branch, Winchester."

APRIL 28.—**Barnsley.**—PAINTING.—For painting, cleansing and decorating administrative block and Long Block at the Kendray Hospital, for the T.C. Borough Engineer, Fairfield House, Barnsley.

APRIL 28.—**Bournemouth.**—SHELTERS AND BUNGALOWS.—For the erection of office, shelters and bungalows on the Undercliffe Drive near Bournemouth Pier, and for office, shelters and bungalows on the Undercliffe Drive near Toft Steps, for the T.C. Mr. F. P. Dolamore, F.S.I., Borough Engineer, Town Hall, Bournemouth.

APRIL 28.—**Bradford.**—SHED.—Erection of a weaving shed at Slack-road, Wibsey, near Bradford. Messrs. Moore & Crabtree, architects, Queensgate Chambers Bradford.

APRIL 28.—**Camberwell.**—PAINTING.—For painting and decorating work at the Council's Nursery, Grove-lane, Camberwell, for the B.C. Mr. William Bell, Borough Engineer, Town Hall, Camberwell, S.E. 5.

APRIL 28.—**Carnarvon.**—HOUSE.—Erection of a house. Mr. Robt. Pierce, F.R.I.B.A., Insurance Chambers, Carnarvon.

APRIL 28.—**Chalfont St. Peter.**—FIRE STATION.—For erection of fire station for Joint Fire Brigades' Committee of Gerrard's Cross and Chalfont S. Peter's P.C. Mr. J. Milliner, High-street, Chalfont St. Peter.

APRIL 28.—**Chesterfield.**—COLLEGE.—For the erection of a technical college in Infirmary-road, Chesterfield, for the Derbyshire E.C. Mr. Percy B. Houfton, architect, Furnival Chambers, Chesterfield. Deposit £2 2s.

APRIL 28.—**Eccles.**—PAINTING.—For painting and decorating interior of Public Library, for the T.C. Borough Engineer, Town Hall, Eccles. Deposit £2 2s.

APRIL 28.—**Glamorgan.**—VARIOUS WORKS.—For carrying out for the C.C. the following works:—(1) Graigcefnparc Council School—relevelling playgrounds, building retaining walls, sloping ways, &c.; (2) Maesmarchog Infants' School—building new infants' department; (3) Maesteg Secondary School—levelling and fencing of playing field; (4) Pontardawe Secondary School—levelling and fencing of playing field; (5) Kenfig Hill Council School—new temporary classrooms; (6) Rhiwfawr Council School—new playsheds and improvement of playgrounds; (7) Bryndu Council School—levelling and fencing; (8) Garw Secondary School—restoration; (9) Blaengarw Council School—retaining walls; (10) Troedrhiwfuch Council Schools—repairs; (11) Hengoed Boys' School site—levelling and fencing; (12) Pentyrch School House site—levelling and fencing; (13) Derwen Deg School site—levelling and fencing.

APRIL 28.—**Heckmondwike.**—ALTERATIONS.—For alterations to the power station, Bath-road, for the U.D.C. Electricity Dept.'s Offices, High-street, Heckmondwike. Deposit £1.

APRIL 28.—**Launceston.**—HOUSES.—For the erection of ten workmen's dwellings, for the T.C. Mr. J. Burford, Borough Surveyor, Guildhall, Launceston.

APRIL 28.—**Monifieth.**—HOUSES.—For the erection of two houses for the T.C. Mr. D. Gowans, Town Clerk, Monifieth.

APRIL 28.—**Sheffield.**—HOUSES.—Erection of 220 houses on Manor Estate, City-road, Intake, for the T.C. Mr. F. E. P. Edwards, City Architect, Town Hall, Sheffield. Deposit £2.

APRIL 28.—**Southampton.**—ALTERATIONS, &C.—Alterations, remodelling, &c., at New Alresford Council School, for the Hants County Council. Mr. A. L. Roberts, County Architect, The Castle, Winchester, on and after April 10, between the hours of 9 a.m. and 4 p.m.; Saturdays 9 a.m. and 12 p.m. noon. Deposit £1 1s., payable to Hants County Council and crossed "Lloyd's Bank, Ltd., Capital and Counties Branch, Winchester."

APRIL 28.—**St. Albans.**—COTTAGES.—Erection of 12 cottages (three blocks of four) in Folly-avenue, for the Corporation of the City of St. Albans. Mr. J. Ashurst, C.E., City Engineer and Surveyor, 96, Victoria-street, St. Albans. Deposit £2 2s.

APRIL 28.—**Various Places.**—PAINTING.—For cleaning and repainting station buildings, &c., at the following places:—(11) Droitwich, Hartlebury, &c.; (12) Bicester, Ardley, &c.; (13) Evesham, Pershore, &c.; (14) Tyseley; (15) Lapworth, Bordesley, &c.; (16) Hockley, West Bromwich, &c.; (17) Wellington (Salop), Market Drayton, &c.; (18) Kidderminster, Oldbury, &c., for the G.W.R. Co. Engineer at Wolverhampton Station.

APRIL 28.—**Wakefield.**—SHELTERS.—Supply of ten sectional wooden shelters, to the West Riding Public Health Committee. West Riding Architect, County Hall, Wakefield.

APRIL 29.—**Huddersfield.**—VILLA.—Erection of a villa residence in Butternab-road, Beaumont Park, Huddersfield. Messrs. Lunn & Kaye, architects, Milnsbridge.

APRIL 29.—**Longton.**—EXTENSION.—For the extension of the Post Office, Longton (Staffs), for H.M. Commissioners of Works. Contracts' Branch, H.M. Office of Works, King Charles-street, S.W. 1. Deposit £1 1s.

APRIL 29.—**Rochdale.**—ROOF.—For stripping off and repairing roof at Workmen's Club. Secretary, Club, Rochdale.

APRIL 29.—**Sevenoaks.**—SHED.—Erection of a light steel-framed cart shed at the Council's Depot, for the U.D.C. Surveyor, Council Offices, Argyle-road, Sevenoaks.

APRIL 30.—**Bradford.**—LAIRAGES.—For erection of lairages adjoining Filey-street, St. James's Market. City Architect, Town Hall, Bradford.

APRIL 30.—**Burgh-by-Sands.**—EXTENSION.—For extension of Burgh-by-Sands public hall, for the Trustees. Mr. Thos. F. Armstrong, Rose Mount, Burgh-by-Sands.

APRIL 30.—**Greenwich.**—HOUSES.—Erection and completion of 50 houses (some of which are partially erected) on the No. 3 Section of the Housing Estate at Charlton, for the Metropolitan Borough Council of Greenwich, S.E. Town Clerk's Dept., Town Hall, Greenwich. Deposit £2 2s.

APRIL 30.—**Maidstone.**—ALTERATIONS.—For alterations and additions to Trinity House, Church-street, for Kent County Ophthalmic Hospital. Messrs. Ruck & Smith, 86, Week-street, Maidstone. Deposit £1 1s.

APRIL 30.—**Manchester.**—HUT.—Supply at Abergele of a wood sectional sleeping hut, for the T.C. City Architect, Town Hall, Manchester. Deposit 10s. 6d.

APRIL 30.—**Newton-on-Ouse.**—CHURCH, &C.—Erection of new Wesleyan church and school, Newton-on-Ouse. Mr. J. Francis Todd, architect, Easingwold.

APRIL 30.—**Nuneaton.**—HOUSES, &C.—For the erection of 34 houses on the Attleborough Housing Estate, for the Corporation. Mr. R. C. Moon, A.M.I.C.E., Borough Engineer and Surveyor, Municipal Offices, Queen's-road, Nuneaton. Deposit £2 2s.

APRIL 30.—**Ossett.**—PUMPING STATION.—Erection of a pumping station on site of old Pildacre Colliery, for T.C. Mr. H. Holmes, Borough Surveyor, Town Hall, Ossett.

APRIL 30.—**Ramsgate.**—THEATRE.—For construction of a portable theatre on the foreshore, for the T.C. Mr. T. G. Taylor, Borough Engineer, Albion House, Ramsgate.

APRIL 30.—**Salisbury.**—EXTENSION.—For extending the Municipal Offices, Endless-street, for the T.C. City Engineer, Municipal Offices, Salisbury.

APRIL 30.—**Southend-on-Sea.**—SCHOOLS.—Erection of proposed new secondary schools, Westcliff, for the County Borough of Southend-on-Sea E.C. Mr. H. Farrands, M.A., Director of Education, Education Offices, 20, Warrior-square, Southend-on-Sea. Deposit £3 3s. (cheques to be made payable to the Southend Corporation).

APRIL 30.—**Stocksbridge.**—HOUSES.—Erection of 26 houses on Shay House site, for the U.D.C. Mr. J. N. Singleton, Stocksbridge. Deposit £2.

APRIL 30.—**Todmorden.**—HOUSES.—For the erection of 16 houses on Royd Housing Estate, for the T.C. Mr. H. Crabtree, Borough Surveyor, Municipal Offices, Todmorden.

MAY 1.—**Ballymena.**—PAINTING.—For painting, &c., interior of Connor Presbyterian Church. Rev. H. V. Clements, Connor Manse, Kells, Ballymena.

MAY 1.—**Carlisle.**—PAINTING.—For internal painting and decorating of the Court Houses and offices, Carlisle, for the C.C. Mr. J. Forster, County Architect, The Courts, Carlisle.

MAY 1.—**Carrbois.**—PAINTING.—For painting of Mechanics Institute and caretaker's house. Mr. J. Whinsie, Secretary, Carrbois.

MAY 1.—**Conway.**—HOUSE.—For the erection of children's home for 40 children at Llandudno Junction, for the Conway B.G. Mr. S. C. Foulkes, architect, Central Chambers, Colwyn Bay. Deposit £1 1s.

MAY 1.—**Maesbury.**—EXTENSION.—For extension of Congregational Church Schoolroom, Maesbury. Mr. R. Roberts, Llwyn Onn, Maesbury.

MAY 1.—**Poole.**—HOUSES.—For the erection of 74 houses with fences and drains, for the T.C. Mr. S. J. Newman, Borough Surveyor, Municipal Offices, Poole.

MAY 1.—**Portsmouth.**—FLATS.—Erection and completion of four blocks of flats in Voller-street, Landport, and for the maintenance thereof in thorough repair for six calendar months from the completion thereof, for the Portsmouth Town Council. Mr. Arthur W. Ward, Borough Engineer, Town Hall, Portsmouth.

MAY 1.—**Trowbridge.**—PAINTING.—For interior decoration work at Isolation Hospital, for the Committee. Mr. W. J. Mann, Clerk, Glenion-street, Trowbridge.

MAY 2.—**Merthyr Tydfil.**—HOUSES.—For erecting, for the B.C., 50 houses at Pontsacllog, Dowlais, and 28 houses at Aberfau. Borough Architect, Council Offices, Merthyr Tydfil.

MAY 3.—**Alnwick.**—CONVENIENCE.—For erection of urinal at Cemetery for the Burial Board. Mr. R. Middlemiss, Clerk, Alnwick.

✱MAY 3.—**France.**—CEMETERY CONSTRUCTION.—Construction of approximately 35 cemeteries in France, for the Imperial War Graves Commission. Contract 1924 "T." Secretary, Works Department, Imperial War Graves Commission, 82, Baker-street, London, W.1. Deposit 15 guineas.

MAY 3.—**Pembrokeshire.**—BUILDINGS.—For erecting for the County Small Holdings Committee: (1) New house and outbuildings at Llysfran; and (2) house at The Croft, Llysfran. Mr. Owain Thomas, County Architect, County Offices, Haverfordwest. Deposit £1 1s.

MAY 3.—**Rochester.**—HOUSES.—For the erection of 60 houses, for the T.C. Mr. W. Law, City Surveyor, Guildhall, Rochester. Deposit £5 5s.

✱MAY 5.—**Amersham.**—BUILDING WORKS.—Building works only, viz.: New boiler house, engine room and laundry building, sanitary annexe, &c., for the Guardians of the Amersham Union, at the Amersham Poor Law Institution. Guardians' Architect, Mr. Ernest E. Fetch, A.R.I.B.A., 5, Broom-road, Teddington, Middlesex. Deposit £2 2s.

MAY 5.—**Barnsley.**—DEMOLITION.—For the pulling down of property, Church-street, Barnsley. Mr. H. Taylor, Fairfield House, Barnsley.

MAY 5.—**Barnsley.**—PAINTING.—For cleansing and painting gates and railings of St. Mary's Churchyard, for T.C. Borough Engineer, Fairfield House, Barnsley.

MAY 5.—**Cardiff.**—ALTERATIONS.—For alterations to lavatory at 11, Park-place, for Board of Guardians. Mr. R. Stephenson, Clerk, Union Offices, 11, Park-place, Cardiff.

MAY 5.—**Cardiff.**—ALTERATIONS.—For alterations to bathroom at Ely Lodge, for Board of Guardians. Mr. R. Stephenson, Clerk, Union Offices, 11, Park-place, Cardiff.

MAY 5.—**Dorking.**—COTTAGES.—For the erection and completion of 50 cottages, for the U.D.C. Mr. S. S. Gettings, Surveyor, Council Offices, Dorking.

MAY 5.—**Evesham.**—CONVENIENCES.—For the provision of a public sanitary convenience at the Town Hall, for the T.C. Mr. J. Abbott, Surveyor, Town Hall, Evesham.

MAY 5.—**Margate.**—ROOF.—Construction of a reinforced concrete roof, &c., to the boiler house and economiser house at the Corporation's Waterworks Pumping Station at Wingham, near Canterbury; also for a false ceiling to the coal store at the station, for the T.C. Borough Engineer, 13, Grosvenor-place, Margate.

MAY 5.—**Pontypridd.**—HOUSES.—For erecting for the Pontypridd U.D.C. 60 houses on the Duffryn site at Rhyd-y-Felin (Pontypridd). Mr. W. E. Lowe, Surveyor, Council Offices, Pontypridd (Glam). Deposit £3 3s.

✱MAY 5.—**Portsmouth.**—RUBBER FLOORING.—Works to be done and materials to be supplied in connection with laying rubber flooring to the main corridors of the Town Hall in the Borough of Portsmouth. Borough Engineer's Office, Town Hall, Portsmouth.

MAY 5.—**Southampton.**—PUBLIC BATHS.—Erection of public baths at Woolston, for the T.C. Borough Engineer, 33, French-street, Southampton. Deposit £2 2s.

MAY 5.—**Stoke-on-Trent.**—POINTING.—For pointing work at Penkhull Children's Homes, for the B.G. Mr. A. R. P. Piercy, Union Offices, Stoke.

✱MAY 5.—**Wallington, Surrey.**—HOUSES.—Erection and completion of 44 brick-built houses on the Miller's Orchard, Beddington Corner Site, for the Beddington and Wallington U.D.C. (Housing Scheme No. 2). Architect, Mr. S. F. R. Carter, A.M.Inst.C.E., Engineer to the Council, Council Offices, Wallington. Deposit £2 2s.

✱MAY 5.—**Wandsworth.**—ADDITIONS.—For alterations and additions to the Borough Engineer's Office, 215, Balham High-road, S.W., for the B.C. Mr. E. J. Elford, Borough Engineer, 215, Balham High-road, S.W. 17.

✱MAY 5.—**Wandsworth, S.W. 18.**—PAVILIONS.—Sports' pavilions at King George's Park, Wandsworth, and the Furzedown Recreation Ground, Streatham, for the Wandsworth B.C. Mr. E. J. Elford, M.Inst.C.E., Borough Engineer, 215, Balham High-road, S.W. 17.

MAY 6.—**Aberdare.**—POST OFFICE.—For the erection of a new post office and telephone exchange, for the Commissioners of H.M.Works. Contracts Branch, H.M. Office of Works, King Charles-street, S.W.1. Deposit £1 1s.

MAY 6.—**Durham.**—PAINTING.—For external painting at Ryhope Secondary School, for C.C. Mr. A. J. Dawson, Director of Education, Shire Hall, Durham.

MAY 6.—**Hatfield, Herts.**—COTTAGES.—Erection of 24 cottages in the parish of Hatfield, for the R.D.C. Messrs. Crickmer & Foxley, architects, 1, Lincoln's Inn Fields, London, W.C.2. Deposit £2 2s.

MAY 6.—**Welwyn, Herts.**—COTTAGES.—Erection of 40 cottages in the parish of Welwyn, in the county of Hertford, for the Welwyn R.D.C. Mr. H. G. Cherry, architect, 97, Jermyn-street, St. James, S.W.1. Deposit £2 2s.

MAY 7.—**Aberdare.**—PUBLIC HALL, &C.—For erecting, for the Aberdare United Services Club and Institute, Ltd., a new public hall and billiard room, &c., at Cross-street, Aberdare. Mr. Gwilym Bosher, architect, 29, Victoria-square, Aberdare. Deposit £2 2s.

MAY 7.—**Littlehampton.**—CONVENIENCES.—For the erection of public conveniences in St. Martin's-lane, for the U.D.C. Surveyor, Town Offices, Littlehampton.

MAY 7.—**Salford.**—TILING.—For tiling floors, walls and ceilings of kitchen, scullery and larder at Ladywell Sanatorium, Eccles New-road, for the T.C. Medical Officer of Health, 143, Regent-road, Salford.

MAY 8.—**Llandudno.**—CHILDREN'S HOME.—Erection of a new Children's Home (40 children) in Baden Powell-road, Llandudno Junction, for the Guardians of the Poor of the Conway Union. Mr. S. Colwyn Foulkes, architect, Central Chambers, Colwyn Bay. Deposit £1 1s.

✱MAY 9.—**Tilbury, Essex.**—HOUSES.—Completion of the erection of 208 houses in Tilbury, now in varying stages of partial construction under four sets of specifications (respectively covering 48 and 58 houses in the North, or Chadwell Ward, and 42 and 60 houses in the South Ward), for the Tilbury U.D.C. Mr. A. W. Buckner, Clerk to the Council, Council Offices, Tilbury.

MAY 10.—**Glamorgan.**—VARIOUS.—For all works at County Hall, Cardiff, and for individual works at Police Stations as follows:—(1) Clydach; (2) Neath (County); (3) Maesteg; (4) Pontardawe; (5 and 7) Kenfig Hill; (6) Ystalyfera; (8 and 9) Pontycymmer; (10) Pontlottyn; (11 and 13) Hengoed; and (12) Taffs Well.

MAY 12.—**Finchley.**—PAINTING.—For painting and other works at schools, for the U.D.C. Mr. P. T. Harrison, surveyor, Church End, Finchley, N. Deposit £1 1s.

✱MAY 12.—**Mansfield.**—HOUSES.—Erection and completion of 74 houses (3 blocks of six houses, 2 blocks of four houses, and 24 pairs, all type A. 3), for the T.C. of the Borough of Mansfield. Mr. Warrick Thompson, Assoc.M.Inst.C.E., Borough Engineer and Surveyor, Market-street, Mansfield. Deposit £2 2s.

MAY 12.—**Port Talbot.**—PAINTING.—For the painting of the various schools within the Borough. Mr. Moses Thomas, Port Talbot.

MAY 15.—**Kingston-upon-Thames, Surrey.**—ADDITIONS TO HOSPITAL.—Erection of buildings to provide additional accommodation for nurses at (*a*) Brookwood Mental Hospital, (*b*) Netherne Mental Hospital, for the Lunatic Asylums Visiting Committee of the Surrey County Council. Mr. J. F. Hodgson, M.S.A., architect, 161, High-street, Guildford.

✱MAY 15.—**London, S.W.2.**—REMOVAL AND RECONSTRUCTION.—Removal of the existing public overground iron urinal, situate at Webber-street, New Cut, and the re-erection of same on a refuge in the centre of the roadway of the said street and the provision of new salt glazed stoneware stalls, &c. Borough Engineer's Office, Town Hall, Brixton Hill, S.W.2.

✱MAY 16.—**Ilford, Essex.**—MEMORIAL HALL.—Erecting a circular memorial hall, about 30 ft. average diameter, faced with Portland stone and red bricks and roofed with reinforced concrete dome, in Hatch-lane, Ilford, for the Chairman and Members of the Ilford War Memorial Fund. Messrs. C. J. Dawson, Son, & Allardyce, architects, Clock House Chambers, Barking. Deposit £5.

✱MAY 19.—**Various Places.**—GAS MAINS.—Supplying and fixing of gas mains, services, fittings, &c., in schools and other buildings provided or maintained by the Council, based upon the Council's Schedule of prices for each work for the London County Council. Architect to the Council, The County Hall (Room No. 3), Westminster Bridge, S.E.1. Deposit £1 1s.

MAY 20.—**Featherstone, Yorkshire.**—HOUSES.—Erection of 50 houses at Streethouse, near Pontefract, for the Featherstone U.D.C. Mr. Samuel Chesney, A.R.I.B.A., Council Offices, Featherstone, near Pontefract. Deposit £2 2s.

NO DATE.—**Barry.**—PAINTING.—For painting inside and outside of No. 5, Park-road, Barry. Owner, at address given.

NO DATE.—**Leeds.**—ADDITIONS.—For alterations and additions to the "Marquis of Lorne" Hotel, Leeds, for John Smith's Tadcaster Brewery Co., Ltd. Mr. Bertram Wilson, architect, Kirkgate, Tadcaster. Deposit £1;

NO DATE.—**Llandyssul.**—PLASTERING.—For plastering inside and outside of farmhouse, &c. Mr. Thomas, Cwmhyar Farm, Llandyssul.

NO DATE.—**Slebech (Pemb).**—ADDITIONS.—For erecting an additional wing to a house at The Rhos. Picton Castle Estate Offices, Narberth (Pemb).

FURNITURE, MATERIALS, etc.

APRIL 26.—**Clayton-le-Moors.**—MATERIALS.—For road materials and tar for one year, for the U.D.C. Mr. H. Dodgeon, Surveyor, Council Offices, Clayton-le-Moors.

APRIL 26.—**Devon.**—FURNITURE.—For supply of furniture for one year, for Education Committee. Secretary, The Castle, Exeter.

APRIL 26.—**Glasgow.**—MATERIALS.—For supply of road and other materials for T.C. Public Works Office, City Chambers, 64, Cochrane-street, Glasgow.

APRIL 28.—**Alnwick.**—SPRAYING MACHINE.—For supply of tar spraying machine of 200 gallons capacity. Mr. J. E. Robson, Surveyor, Alnwick.

APRIL 28.—**Bolton.**—CEMENT.—Supply of Portland cement to the T.C. Borough Surveyor, Bolton.

APRIL 28.—**Islington.**—MATERIALS.—For the supply of (*a*) 650 tons of granite or slag tar macadam, (*b*) castings and other ironwork. Borough Engineer, Islington, N.

APRIL 28.—**Shoreham-by-Sea.**—MATERIALS.—For supply of road materials, for the U.D.C. Town Surveyor, Town Hall, Shoreham-by-Sea.

APRIL 29.—**Glasgow.**—MATERIALS.—(1) Brass mountings; (2) electrical fittings and accessories; (3) glazier work; (4) iron gas fittings; (5) lamp pillars; (6) paints and oils; (7) stained and lettered glass panes; (8) tin-plate, copper, &c.; for the Lighting Department. Office of the Lighting Department, 20, Trongate, Glasgow.

APRIL 29.—**Great Yarmouth.**—WOOD BLOCKS.—For supply of 300,000 creosoted fir paving blocks, to the T.C. Mr. S. P. Thompson, Borough Engineer, Great Yarmouth.

APRIL 29.—**Lambeth.**—FIRE EXTINCTEURS.—Supply of fire extincteurs to the B.G. Mr. James L. Goldspink, Clerk, 128, Brook-street, Kennington, S.E. 11.

APRIL 29.—**Lambeth.**—LOCKERS.—Supply to the B.G. at their Lambeth Hospital of 200 oak ward lockers. Mr. J. L. Goldspink, Clerk, Offices, Brook-street, Kennington-road, S.E. 11.

APRIL 30.—**Bedlington.**—MATERIALS.—For the supply of dry and tarred Whinstone slag or limestone for either six or twelve months, to the U.D.C. Mr. J. W. Pooley, Surveyor, Bedlington.

APRIL 30.—**Huyton-with-Roby.**—MATERIALS.—Supply of 500 tons 2½ in. tarred slag macadam and 200 tons ¾ in. tarred slag macadam, to the U.D.C. Mr. H. Finister, Surveyor, Public Offices, Huyton.

APRIL 30.—**Ramsgate.**—REFUSE WAGONS.—For supply of four refuse wagons suitable for horse haulage, for T.C. Mr. T. G. Taylor, Borough Engineer, Ramsgate.

MAY 1.—**Gildersome.**—GRANITE SETTS.—Supply of 900-1,000 tons of 4 in. by 5 in. granite sets, to the U.D.C. Mr. W. Wilby, Surveyor, Gildersome.

MAY 6.—**Belchamp.**—MATERIALS.—Supply of broken granite and slag, to the R.D.C. Mr. S. Allpress, surveyor, Sudbury, Suffolk.

MAY 13.—**Richmond.**—MATERIALS.—Supply of grey lime, Buxton lime, sewage precipitants, and filter press cloth to the Richmond Main Drainage Board. Mr. William Fairley, Engineer, West Hall-road, Kew Gardens, Surrey.

ENGINEERING, IRON AND STEEL.

APRIL 26.—**Portland.**—RESERVOIR ROOF.—For taking down existing roof of the Yeates Reservoir, Portland, and the construction of a reinforced concrete roof, for the U.D.C. Mr. R. Davison, Surveyor, Council Offices, Portland.

APRIL 26.—**Swadlincote.**—TANK.—Construction of a water tank in reinforced concrete (capacity 8,500 gallons), for the U.D.C. Mr. George A. Taylor, Surveyor, Council Offices, Swadlincote, near Burton-on-Trent. Deposit £1.

APRIL 28.—**Poole.**—BRIDGE.—For construction of a new bridge over the Channel dividing Poole from Hamworthy, for T.C. Messrs. Livesey, Son & Henderson, 14, South-place, London, E.C.2. Deposit £5 5s.

APRIL 28.—**Rotherham.**—BRIDGE.—Construction of the abutments for a steel bridge and in the approach works to such bridge, which will carry the Bawtry and Tinsley main road over the River Rother, Rotherham, for the West Riding C.C. West Riding Surveyor, County Hall, Wakefield. Deposit £1.

APRIL 29.—**Acton.**—BRIDGE.—For the reconstruction of Mason's Green-lane Bridge, Acton, W., for the G.W.R. Co. Engineer, Paddington Station, W.

APRIL 29.—**Laira.**—BRIDGE.—For the reconstruction of a bridge over Old Laira-road, Laira, near Plymouth, for the G.W.R. Co. Engineer, Paddington Station, W.

APRIL 29.—**London.**—FENCING.—Supply and erection of wrought-iron fencing, Shooters Hill Pumping Station, Kent, for the Metropolitan Water Board. Chief Engineer, 173, Rosebery-avenue, E.C.1.

APRIL 29.—**Maidenhead.**—BRIDGE.—For the reconstruction of Craufurd College Bridge under the Wycombe Branch Line, near Maidenhead, for the G.W.R. Co. Engineer, Paddington Station, W.

APRIL 29.—**Paddington.**—STEELWORK.—For the supply of about 163 tons of steel girders and other iron and steel work of British manufacture, to the G.W.R. Co. Engineer, Paddington Station, W.

APRIL 30.—**Langford.**—BRIDGE.—For the reconstruction of Langford Bridge, near Maldon, for the Essex C.C. Mr. W. H. Morgan, County Surveyor, Old Court, Chelmsford.

APRIL 30.—**London.**—LATHES, &C.—Supply of lathes, and other machine tools, for Testing Shop, Rosoman-street, Clerkenwell, E.C.1., for the Metropolitan Water Board. Chief Engineer, 173, Rosebery-avenue, E.C.1.

MAY 1.—China.—BRIDGE.—The Commercial Councillor at Peking has forwarded to the Department of Overseas Trade copies of the official text of a call for tenders by the Hai Ho Conservancy Commission, for the erection of a bridge over the Hai Ho at Tientsin. Tenders must be in the hands of the Commission before noon on May 1, 1924. The cost of erecting the new bridge has been roughly estimated at Tls. 700,000, say £105,000. Department of Overseas Trade, 35, Old Queen-street, S.W. 1. Reference 11647/F.E./E.C./2.

MAY 1.—**Egypt.**—ROOFS, &C.—Construction of steel roofs and shelter of Alexandria new station, for the Egyptian State Railways. Inspecting Engineer, Egyptian and Sudan Governments, Queen Anne's Chambers, Broadway, Westminster, S.W. Charge £6 3s.

MAY 1.—**Pontypool.**—HEATING INSTALLATION.—For the installation of steam and exhaust pipes and low pressure heating and hot water services at the Institution of the Board of Guardians. Mr. T. P. H. Watkins, Clerk, Union Offices, Pontypool. Deposit £5 5s.

MAY 2.—Durban, Natal.—WATER SCHEME.—For supply of large sluice valves, valve tower ironwork, pipes, &c., for Vernon Hooper Dam in Shongweni Water Scheme, for T.C. Messrs. Webster, Steel & Co., 5, East India-avenue, London, E.C. Deposit £5 5s.

MAY 5.—**Brackley.**—PUMPING PLANT.—For erection of crude oil engine and well pump to lift 8,000 gallons of water per hour at Waterworks Pumping Station, for T.C. Mr. E. J. Silcock, Corporation Engineer, 25, Victoria-street, Westminster, S.W. 1. Deposit £5.

MAY 7.—**Salford.**—HEATING APPARATUS.—For heating and hot-water service at the Maternity and Babies' Hospital, Seedley-road, Seedley, for T.C. Medical Officer of Health, 143, Regent-road, Salford.

MAY 8.—**Barking.**—BRIDGE.—For the construction of the bridge over Barking Creek on the line of the East Ham and Barking By-pass, for the Ministry of Transport. Chief Engineer, Roads Department, Ministry of Transport, 7, Whitehall-gardens, S.W.1. Deposit £100.

MAY 9.—**South Africa.**—COAL ELEVATORS.—Supply and erection of five coal elevators and ten coal shutes, for the Rand Water Board. Dept. of Overseas Trade, 35, Old Queen-street, S.W. Reference 13429/ED/EC/2.

MAY 10.—**Poulton-le-Fylde.**—BRIDGE.—Construction of a bridge over the London, Midland, and Scottish Railway in the township of Poulton-le-Fylde, for the Lancashire C.C. County Surveyor and Bridgemaster, County Offices, Preston.

MAY 12.—**Dewsbury.**—REINFORCING BARS.—Supply of mild steel reinforcing bars (approximately 35 tons) for use in the construction of a ferro-concrete tank, for the T.C. Mr. H. Dearden, Borough Engineer, Town Hall, Dewsbury. Deposit £2 2s.

MAY 12.—**Dewsbury.**—TANK.—Construction of a ferro-concrete tank (500,000 gallons capacity), and other appurtenant works, for the T.C. Mr. H. Dearden, Borough Engineer, Town Hall, Dewsbury. Deposit £2 2s.

MAY 30.—**London.**—STEELWORK.—Supply to the South Indian Railway Co. of structural steelwork (Machine Shop). Company's Offices, 91, Petty France, Westminster, S.W.1. Charge £1.

JULY 1.—Chili.—HARBOUR WORKS.—For the work of improvement of the Harbour of Constitucion, Chili. Chilian Legation, 22, Grosvenor-square, W.1.

ROAD, SANITARY, AND WATER WORKS.

APRIL 26.—**Chelsea, S.W.**—SANITARY WORK.—Taking out the existing (upon four floors) and erecting new sanitary fittings, plumbing, and other work to the turret of the new Ward Block at the St. Luke's Hospital, Cale-street, Chelsea, S.W., for the Guardians of the Parish of Chelsea. Guardians' Architect, Mr. Edmund J. Harrison, 23, Berkeley-road, Crouch End, N.8.

APRIL 26.—**Glasgow.**—CONVENIENCE.—Construction of a public convenience in Alexandra Park (1) mason, brick, joiner, &c., works; and (2) sanitary fittings, Office of Public Works, City Chambers, 64, Cochrane-street, Glasgow.

APRIL 26.—**Ongar.**—ROADS.—For the laying of about 39,000 superficial yards of bituminous grouted macadam, for the R.D.C. Mr. H. C. Phillips, Surveyor, Ongar, Essex.

APRIL 26.—**Otley.**—ROADS, &C.—For water mains, streets, sewers and drains, Newall Carr-road Housing Scheme, for the U.D.C. Surveyor, Council Offices, Otley. Deposit £3 3s.

APRIL 26.—**Reigate.**—SEWER.—For the construction of 360 yds. of 9 in. stoneware pipe-sewer in Park-lane, for the T.C. Borough Engineer, Reigate.

APRIL 26.—**Walsall.**—ROADS.—For remaking portion of Watery-lane, for the T.C. Borough Surveyor, Walsall.

APRIL 28.—**Alnwick.**—DRAINAGE.—For laying 144 yards of 6 in. sanitary pipes at Christon Bank, for the R.D.C. Clerk, Alnwick.

APRIL 28.—**Chepstow.**—TARVIA SPRAYING.—For spraying with Tarvia, for the U.D.C., about 24,000 sq. yds. of roads. Mr. J. N. Jefferies, surveyor, Bridge-street, Chepstow (Mon).

APRIL 28.—**Chorley.**—SEWAGE WORKS.—For the construction of sewage disposal works, for the T.C. Messrs. Dodd & Watson, County Chambers, Corporation-street, Birmingham. Deposit £5.

APRIL 28.—**Dartford.**—ROADS.—For the reconstruction in tarmacadam of portion of the carriageway in Highfield-road, for the U.D.C. Mr. J. J. Hurtley, Clerk, Council Offices, Dartford. Deposit £1 1s.

APRIL 28.—**Dartford.**—ROADS.—For making-up Christchurch-road, Marlborough-road, and road from Wellington-road to Marlborough-road, and construction of sewer in Shepherds-lane, for the U.D.C. Mr. J. J. Hurtley, Clerk, Council Offices, Dartford. Deposit £1 1s.

APRIL 28.—**Islington.**—ROADS.—For paving with asphalte part of the carriageway of Crouch Hill, for the B.C. Borough Engineer, Municipal Offices, Tynedale-place, N.1.

APRIL 28.—**Kempton.**—WATER MAIN.—(*a*) For laying 7½ miles of cast iron water main; (*b*) for laying 450 yds. of 52 in. steel pipes and contingent works from Kempton to Greenford, for Metropolitan Water Board. Mr. H. E. Stilgoe, Chief Engineer, Offices of the Board, New River Head, Clerkenwell, E.C.1. Deposit £20.

APRIL 28.—**Musselburgh.**—ROADS.—Construction of granolithic foot pavement and kerb at Edinburgh-road, for the T.C. Mr. John Barclay, Burgh Surveyor, Musselburgh.

APRIL 28.—**Rochford.**—SEWERS.—For the construction of about five miles of 7 in., 8 in., and 9 in. stoneware sewers, for the Parish of Hadleigh, for the R.D.C. Mr. John H. Blizard (Lemon & Blizard), 7, Victoria-street, Westminster. Deposit £5 5s.

APRIL 28.—**Romford.**—SEWERAGE.—For laying about 350 yards of 6 in. and 9 in. diameter foul sewer in Brentwood-road and Manor-road, for the U.D.C. Mr. F. G. Beaumont, Surveyor, 73, South-street, Romford. Deposit £1 1s.

APRIL 28.—**Swindon.**—TENNIS COURTS.—For laying down eight hard tennis courts, for the T.C. Borough Surveyor, 34, Regent-circus, Swindon.

APRIL 29.—**Basford.**—SEWERAGE WORK.—For emptying and refilling bacterial filter beds at Sewerage Works, for the R.D.C. Mr. Stephen Maylan, Surveyor, Public Offices, Rock House, Stockhill-lane, Basford Nottingham. Deposit £1 1s.

APRIL 29.—**Bolton.**—TRAMWAY.—For the laying of about 2¼ miles of single tramway, 4 ft. 8½ in. gauge, together with passing places, in the Westhoughton Urban District, for the T.C. Borough Engineer, Town Hall, Bolton.

APRIL 29.—**Liverpool.**—TENNIS COURTS.—For the construction of two asphalte tennis courts, Prince's Park, for the T.C. Land Steward and Surveyor Municipal Buildings, Liverpool.

APRIL 29.—**Torquay.**—WATER WORKS.—For laying about 3¼ miles of 12 in. and ½ mile of 7 in. cast-iron pipes, for the T.C. Mr. Samuel C. Chapman, Waterworks Engineer, Town Hall, Torquay. Deposit £2 2s.

APRIL 30.—**France and Belgium.** HEADSTONES.—Total supply of 15,000 headstones, packed and delivered, F.O.R., to be divided into a number of contracts, none of which shall be for less than 100 headstones. The Secretary, Works Department, Imperial War Graves' Commission, 82, Baker-street, London, W. 1.

APRIL 30.—**Hemel Hempstead.**—ROADS.—For sewering and making up of a private street about 300 yards long for the T.C. Mr. W. R. Locke, Borough Surveyor, Hemel Hempstead, Herts.

APRIL 30.—**Lanchester.**—SEWAGE WORKS.—Construction of 1,300 lin. yds. of 6 in. pipe sewer at Medomsley Edge, for the R.D.C. Mr. G. W. Westgarth, Surveyor, Lanchester.

APRIL 30.—**Swansea.**—SEWAGE WORKS.—For construction of sewerage works at Llansamlet, for T.C. Mr. J. R. Heath, Chief Engineer, Main Drainage Dept., Guildhall, Swansea. Deposit £5 5s.

APRIL 30.—**Wembley.**—ROADS.—For the tarpainting of approximately 100,000 yards super of roads, for the U.D.C. Mr. C. R. W. Chapman, Surveyor, Council Offices, Wembley, Middlesex.

MAY 1.—**Bolton-upon-Dearne.**—ROADS.—For making up Cross-street, Goldthorpe, for the U.D.C. Mr. W. H. Adams, Council Offices, Bolton-upon-Dearne. Deposit 10s. 6d.

MAY 1.—**Cannock.**—ROADS.—Reconstruction of Littleworth-Rawnsley-road, for the U.D.C. Mr. Robt. Blanchard, Engineer, Council Offices, Cannock.

MAY 1.—**Swansea.**—TAR PAVING.—For the relevelling and tar-paving of playgrounds, &c., at the Oystermouth Council School, for the T.C. Mr. Ernest Morgan, Borough Architect, 3, Prospect-place, Swansea.

MAY 2.—**Doncaster.**—SEWER.—For laying 92 yds. of 12 in. pipe sewer in the back lane at Campsall, for the R.D.C. Mr. W. R. Crabtree, Nether Hall, Doncaster.

MAY 2.—**Northampton.**—ROADS.—For the construction of the new by-pass road at Geddington (length about 800 yards), for the C.C. Mr. C. S. Morris, County Surveyor, County Hall, Northampton. Deposit £2 2s.

MAY 2.—**Shaftesbury.**—SEWERS, &C.—For the laying of about 1,600 yards of sewers and drains, for the T.C. Mr. John Partridge Jenkins, Town Hall, Shaftesbury. Deposit £1 1s.

MAY 3.—**Faversham.**—ASPHALTING.—For 3,150 sq. yds. of double-coat asphalte to be laid on the London-Dover road, for the T.C. Mr. S. Percy Andrews, Borough Surveyor, 20, West-street, Faversham. Deposit 10s.

MAY 3.—**Margate.**—ROAD.—Making-up new road, 80 ft. wide, east of Palm Bay, Margate, for a length of 1,116 ft., for the T.C. Borough Surveyor, 13, Grosvenor-place, Margate.

MAY 5.—**Barnsley.**—ROADS.—For making-up of Foster-street, Conway-street, and Victoria-street, Stairfoot, for T.C. Borough Engineer, Fairfield House, Barnsley.

MAY 5.—**Eccles.**—ROADS.—For making-up Armitage-street, Dorning-street, Lime-street, Oak-street, eleven back passages in the same neighbourhood, for T.C. Mr. T. S. Picton, Borough Surveyor, Town Hall, Eccles. Deposit £1 1s.

✱MAY 5.—**London, S.W.**—STREETS AND SEWERS.—Construction of streets and sewers in connection with the development of the L.C.C., East Hill Estate, Wandsworth, for the L.C.C. The Architect to the Council, The County Hall Room No. 3), Westminster Bridge, S.E. 1. Deposit £1 1s. to the Cashier.

MAY 5.—**Pontypridd.**—ROADS AND SEWERS.—For carrying out for the Pontypridd U.D.C. the following works:—(1) Formation and ballasting of about 740 lineal yards of roadways; (2) constructing and laying of about 1,900 lineal yards of 9 in., 6 in. and 4 in. sewers with 6 in. surface water drains in connection with the proposed erection of 60 houses at Rhyd-y-Felin. Mr. W. E. Lowe, Surveyor, Council Offices, Pontypridd. Deposit £1 1s.

MAY 5.—**Watford.**—ROADS.—For the kerbing, channelling and paving of about 3,300 yds. of footpath in Rickmansworth-road, for the T.C. Mr. D. Waterhouse, Borough Engineer, Municipal Offices, 14, High-street, Watford. Deposit £2 2s.

MAY 5.—**Watford.**—ROADS.—For the making up Sydney-road, Part 2 (290 yards), Whippendell-road, Part 4 (850 yards), for the T.C. Mr. D. Waterhouse, Borough Engineer, Municipal Offices, 14, High-street, Watford. Deposit £2 2s.

MAY 7.—**Glamorganshire.**—STREET WORKS, &C.—For carrying out for the Cardiff R.D.C. the following works:—(1) Street improvements and construction of surface water drains at (*a*) Bishop's-road, &c. (part of), (*b*) Westbourne-crescent (part of), and (*c*) Queen-street (part of), all at Tongwynlais, and (2) sewer extension—(*d*) construction of about 630 lineal yards of 9 in. earthenware pipe sewers with manholes, &c., at Pantbach-road, Whitchurch, and (*e*) widening of Station-road, Rhoose. Mr. William Farrow, 20, Park-place, Cardiff.

MAY 7.—**Prestwich.**—SEWERS.—Construction of 330 yards surface water and soil sewers along Sandy-lane, for the U.D.C. Mr. M. A. Piercy, Surveyor, Town Hall, Prestwich. Deposit £1 1s.

MAY 8.—**Clun.**—ROADS.—For widening the Purslow-Hopton Heath-road and erection of fencing in connection therewith, for the R.D.C. Mr. H. A. Elliott, Surveyor, Bishop's Castle, Salop. Deposit £2 2s.

MAY 8.—**Newbury.**—ROADS.—For resurfacing various streets, for the T.C. Borough Engineer, Newbury.

MAY 12.—**Mitcham.**—ROADS.—For the making up of Garden-avenue, for the U.D.C. Surveyor, Broadway House, London-road, Lower Mitcham.

MAY 15.—**Bingley.**—ASPHALTING, &C.—For the following works: Bingley Training College—(1) Asphalting playing ground; (2) building of accumulator house. Education Department, County Hall, Wakefield.

✱MAY 15.—**Upper Norwood.**—SEWERS AND ROADS.—Works required to be done and materials supplied and used in the formation and laying out of sewers and builders' roads for the development of a portion of the Bloomfield Hall Housing Estate, Central Hill, Upper Norwood, for the Lambeth B.C. Mr. Osmond Cattlin, Assoc.M.Inst.E.C. (Chartered Civil Engineer), Borough Engineer, Town Hall, Brixton Hill, S.W. 2. Deposit £2 2s.

Competitions.

(*See Competition News, page* 668.)

Auction Sales, Tenders, etc.

✱APRIL 28.—**London, E.C.**—Messrs. Alfred Savill & Sons will sell by order of the Trustees under the will of D. McIntosh, Esq. (deceased), valuable freehold building estate, Romford, Essex, adjoining the town, known as Marshall's Park, extending to about 117 acres, including residence, buildings, and cottages. Auctioneers, 69, South Audley-street, London, W. 1.

APRIL 29.—**Stockwell, S.W.**—Messrs. Veryard Yates, F.A.I., will sell, without reserve, at 255, Clapham-road, timber, fittings and building materials, arising from the demolition of the aircraft buildings, Regent's Park. Auctioneers, 365, Norwood-road, S.E.27.

APRIL 29 AND 30.—**Banbury, Oxon.**—Mr. F. H. Clark will sell, without reserve, at Banbury Filling Factory, Central Stores Depot No. 423, timber and building materials accruing from the demolition of the Filling Factory, Banbury, Oxon. Auctioneers, Railway Wharf, York-road, Wandsworth, S.W.18, or of the same firm at the Filling Factory, Banbury, Oxon.

APRIL 29.—**Fulham.**—Messrs. Green & Son will sell, at "The Hermitage," 84, Little-road, large quantities of building materials. Auctioneers, 72, King-street, Hammersmith, W.6.

APRIL 30, AND FOLLOWING DAY.—**London, E.C.**—Messrs. Fuller, Horsey, Sons & Cassell in lots at the Merchants' Hall, Baltic Exchange, St. Mary Axe, E.C., contractors' and builders' plant and stock from Tilbury Housing Scheme, by order of Messrs. Trollope & Colls, Ltd., on account of completion of contract. Auctioneers, 11, Billiter-square, E.C.3.

✱APRIL 30-MAY 1.—**Seal, Kent.**—Messrs. Cronk will sell, by instructions from Lord Hillingdon, at "Wildernesse," Seal, Kent (about 2 miles from Sevenoaks), building materials and plant, timber, ironmongery and tools in the estate workshops and timber yards. Auctioneers, Sevenoaks.

MAY 1.—**Merton.**—Messrs. Veryard & Yates, F.A.I., will sell, without reserve, at High-street, Colliers Wood, building materials, arising from demolition of premises. Auctioneers, 365, Norwood-road, S.E. 27.

MAY 2.—**London, E.C.**—Messrs. Fuller, Horsey, Sons & Cassell will sell by order of Messrs. C. J. Wells & Sons, Ltd., on account of the completion of the London-Tilbury road contract, at the Merchants' Hall, Baltic Exchange, St. Mary-Axe, E.C., contractors' plant. Auctioneers, 11, Billiter-square, E.C.3.

✱MAY 6.—**Farnborough, Kent.**—Messrs. Veryard & Yates, F.A.I., will sell, at 1.30, without reserve, on site opposite "George and Dragon" Hotel, building materials arising from demolition of shop premises, also building plant. Auctioneers, 365, Norwood-road, S.E.27.

MAY 6.—**London, W.1.**—Messrs. Knight, Frank & Rutley, at the Hanover-square Estate Room, situate at Wimbledon Common, within half-an-hour by motor of the Houses of Parliament, Freehold, Edgecombe Hall, Beaumont-road; extensive range of outbuildings, in all extending to over 14 acres. Vacant possession will be given on completion of the purchase. Auctioneers 20, Hanover-square, W.1.

MAY 22.—**Hertfordshire.**—Messrs. Knight, Frank & Rutley will sell by direction of Mr. Lionel Frank, as a whole or in lots, in the Hanover-square Estate Room (unless previously sold privately), the freehold residential property, The Grange, Cheshunt, Hertfordshire. Auctioneers, 20, Hanover-square, W. 1.

MAY 27.—**Near Gerrard's Cross (Bucks).**—**Messrs. Knight, Frank & Rutley will sell, by direction of Commander J. A. L. Hay, R.N., freehold agricultural and sporting property, known as Pickeridge Farm, about 171 acres; also about 18 acres of building sites. Auctioneers, 20, Hanover-square, W. 1.**

Public Appointments.

APRIL 28.—**Swansea.**—Quantity Surveying Assistant required in the Borough Architect's Department by the County Borough of Swansea. Borough Architect, 3, Prospect-place, Swansea.

APRIL 28.—**Swansea.**—Clerk of Works required to act under the direction of the Borough Architect for the new elementary school, Town Hill, by the County Borough of Swansea. Borough Architect, 3, Prospect-place, Swansea.

✱APRIL 30.—**Cornwall.**—Clerk of Works required in connection with the Land Settlement Building work by the Small Holdings and Allotments' Committee of the Cornwall C.C. Mr. J. Wilson, County Land Agent, County Hall, Truro.

APRIL 30.—**Neath.**—Temporary Quantity Surveyor required by Glamorgan C.C. Education Committee. County Architect, Metropolitan Chambers, Neath.

✱MAY 3.—**Crewe.**—Architectural Assistant required by the Corporation in the Borough Engineer's Department. Mr. E. G. Timbrell, B.Sc., A.M.I.C.E., Borough Engineer and Surveyor, Municipal Buildings, Crewe.

MAY 7.—**Port Talbot (Glam).**—The B.C. requires the services of an engineer. Mr. Moses Thomas, Town Clerk, Port Talbot (Glam).

MAY 8.—**Carmarthen.**—The Carmarthen R.D.C. is to appoint a surveyor of highways for the sub-district of St. Clears. The Municipal and Cy. Engineers or Surveyors' Institution. Mr. John Saer, 7, Hall-street, Carmarthen.

TRADE NEWS

William Shepherd & Sons, Ltd.

We are informed by this firm that, under the Trade Marks Act, their trade mark, "Shepfast," has duly been registered in Class 50. This word "Shepfast" now supplements entirely the word "Stickfast," which they have previously used to describe their product.

Vigilant Sprinklers, Ltd.

We have received an interesting pamphlet from this company, describing the Vigilant system of fire protection by automatic sprinklers. A Vigilant Automatic Sprinkler, it states, has the same effect as a pail of water instantly available at every part of the building, both day and night; it requires, however, no human help, but immediately extinguishes the fire with a minimum of damage, and at the same time sounds an alarm.

NEW BUILDINGS IN LONDON

Ealing Common.—HOUSES.—Building developments are now taking place at Ealing Common by Messrs. W. Daley & Co., of 58, Birch-grove, Acton. The site consists of 14 acres and is within three minutes' walk from Ealing Common Station. The houses range from four bedrooms and two reception rooms, semi-detached type upwards, and room for a garage if desired.

Acton.—HOUSES.—A number of houses are now being erected by Messrs. W. Daley & Co., of 58, Birch-grove,

Builders' Estates.

Mr. Frederick John Dove, of St. Stephens, Bedfont, Middlesex, governing director of Messrs. Dove Bros., Ltd., Studd-street, Islington, builders and contractors (net personalty, £24,085), £43,697.

Mr. Thomas Nash (76), of Tatton-road South, Heaton Chapel, Lancs, builder (net personalty, £1,490), £16,534.

The British Empire Gas Exhibit Committee.

We are informed by the British Empire Gas Committee that thirteen miles of gas mains have been laid at Wembley to bring gas to the hundreds of exhibitors. At least two million cubic feet of gas per week, they state, will be used by Messrs. Lyons for catering purposes—enough to supply a town of 20,000 inhabitants. Five thousand gas burners, giving a total light of over 500,000 candle power, have been installed for the whole of the Amusement Park. The British Empire Gas exhibit in the Palace of Industry will occupy a space of over 12,000 sq. ft. A noteworthy feature will be the wonderful collection of gas fires, ten millions of which are now in use in this country, and gas-cookers, of which there are five million installed.

Builders' Wages.

The full executives of the building trade unions, representing the National Federation of Building Trade Operatives, met recently to consider the offer of the employers to advance wages a halfpenny an hour. They decided to submit the offer to a ballot of their members. The decision is an endorsement of the following report of the Negotiating Committee:—

"In the opinion of the Negotiating Committee, the terms expressed in the employers' letter of April 15 cannot at the moment be improved by further attempts at negotiations. We therefore advise that the whole facts be placed before our members, and a ballot vote be taken as to whether they are prepared to support their demands by strike action, and that such notice as is required by the constitution of the National Wages and Conditions Council be tendered, to give either party freedom to act as they decide."

The actual date of the ballot is not yet fixed, but will take place during the next week or so.

PROPOSED NEW BUILDINGS & OTHER WORKS *

In these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced. Abbreviations: T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; B.G. for Board of Guardians; B.C. for Borough Council; P.C. for Parish Council; M.H. for Ministry of Health; M.T. for Ministry of Transport; and B.E. for Board of Education.

ABERDEEN.—Plans passed by T.C.: Two houses, Louisville-avenue, for Mr. William Grant, contractor, per Messrs. J. & J. Cameron, architects; extension of gallery at 12, Exchange-street, for Talbots, Ltd., wholesale manufacturers, per Mr. William E. Gauld, architect; hostel for lady students at 52, Skene-terrace, for the Aberdeen University Court, per Messrs. A. Marshall Mackenzie & Son, architects; bungalow, Broomhill-road, for Mrs. Sophia L. Davidson, 363, Holburn-street, per Messrs. M'Andrew & Sutherland, architects; bungalow, Tanfield Walk, for Mr. William W. Elrick, fish merchant, per Messrs. Walker & Duncan, architects; four bungalows, Burns-road, for Mr. John H. Robertson, Mr. George Cruickshank, and Mr. Alexander Fraser, clerk, per Mr. Arthur C. Bruce, architect.

ABERYSTWYTH.—The T.C. has decided to erect a shelter at Bath Rock, at an estimated cost of £365.

ANNFIELDS PLAIN.—The U.D.C. have approved plans submitted by the South Derwent Coal Co., Ltd., for the erection of 60 houses at New Carmyers. An intimation has also been received that the South Moor Colliery Co., Ltd., propose building a number of additional houses at New Kyo.

BARNES.—Plans passed by U.D.C.: House, Laurel-road, by Mr. C. H. Isaacs; 20 houses, Park-drive, by Messrs. Allen & Potter; house, Sheen Common-drive, by Mr. G. A. Gale; six houses, Gerard-road, by Messrs. Ives Bros.; conversion of No. 19, Cleveland-road, into three self-contained flats, by Mr. Roy Gibson; sewers, Park-drive, by Mr. Walter Smith.

BEDFORD.—Plans passed by T.C.: Mr. W. E. G. Hull for Mr. C. Turner, house, Kimbolton-road; Mr. E. H. C. Inskip, for Mr. J. T. Clayton, house, Kimbolton-road; Mr. E. H. C. Inskip, for Mr. T. E. Sinfield house, London-road.

BERWICK.—The licensing justices have approved plans for extensions to the "King's Head" Hotel. The architect is Mr. S. H. Lawson.

BRADFORD.—The Markets Committee's recommendation for the construction of additional cold storage accommodation at the rear of the wholesale meat market, Filey-street, has been approved and tenders for the carrying out of the work are being invited. Messrs. Moore & Crabtree, architects, of Queensgate, are inviting tenders for the erection of a new weaving mill at Wibsey Slack.

BRIDGEND.—Plans passed by U.D.C. are as follows:—Two houses at Brynteg, for Messrs. Banner & Lawrence; house for Mr. J. W. Morris; shops and premises at Ewenny-road, for Mr. W. M. Powell.

BRISTOL.—The City Council has approved of extensions being carried out at the Ham Green Hospital. The estimated cost is £33,000.

CALVERLEY.—Plans passed: Three pairs of houses in Victoria-road, for Mr. J. L. Horn, of Eccleshill.

CARMARTHENSHIRE.—The Llandilo R.D.C. is to apply for powers to carry out alterations to the reservoir accommodation, and to proceed with a water supply scheme.—Mr. J. Howard Morgan, architect to the Joint Counties Mental Hospital Committee, Carmarthen, has submitted a report to the Committee detailing extensive repairs, &c., necessary to the Institution.—The C.C. is recommended by a sub-committee to accept the offer of the Prison premises for £3,250, for conversion to County offices. It is tentatively proposed to convert part of the buildings for housing purposes.

COLYTON.—The Parish Council is to invite tenders for the building of 12 houses.

CONISBOROUGH.—Four hundred houses are to be erected by the Conisborough Housing Association.

CONSETT.—The U.D.C. has approved plans for the erection of 64 houses at The Grove, Consett, for the Consett Iron Co., Ltd.

DARTMOUTH.—The T.C. has offered to present a site to the Dartmouth Cottage Hospital Trustees for the erection thereon of a mortuary.—The T.C. has decided to apply to the M.H. for sanction to borrow £6,000 for the erection of flats in High-street. The Council is about to invite tenders for a block of four houses at Avery's Meadow.

DONCASTER.—The Low Temperature Carbonisation Co., Ltd., of London, propose to establish 500 retorts and are negotiating with the Corporation for a suitable site on which to erect their works.

DOVER.—An inquiry by the M.T. has been held concerning the application of the Corporation to borrow £45,000 for the construction of a road up the eastern cliff.—Sir William Crundall, chairman of the Harbour Board, gave details of proposals of the Board for building a large dock at the eastern end of the former Admiralty harbour, which was handed over to the Board last year, and said that 60 miles of sidings would be constructed for dealing with coal and iron ore.

DRIFFIELD.—A new retort house is to be erected at the Gas Works and other improvements effected, at an estimated cost of £5,000.

DUNDEE.—Plans and sections of proposed new buildings, &c., have been lodged at the office of the City Engineer: Blackness-avenue, semi-detached villa, for Nelson T. Stewart; Camperdown-street, Broughty Ferry, offices for the E.C.; Harrow-street, bungalow, for Mrs. Gardiner.

DUNSCROFT.—A site for a new school has been reserved in the plan for a new estate at Dunscroft, where 400 houses are to be erected.

DURHAM.—The District Committee of the Miners' Welfare Fund has approved of the following schemes: Erection of ambulance house and caretaker's house at Heworth Fanny, also of a similar scheme at Heworth John and Ada; erection of a reading room and construction of a recreation ground at North Biddick, and erection of a groundsman's house and two shelters at Dawdon.

ELLAND.—Six houses are to be erected by Messrs. A. & H. Sutcliffe, at Lower Bradley.

ESTON.—For the purpose of erecting an additional 24 houses of the working-class type, the U.D.C. has decided to make application to the M.H. to borrow £9,240.

FEATHERSTONE.—Plans passed: Three houses at Pontefract-road, Purston, for the South Kirby, Hemsworth and Featherstone Colliery Co., Ltd.; and conversions at Moorland View, for the trustees of W. W. McHughes.

FORMBY.—Plans passed by U.D.C.: house for Mr. Morris Kay, Paradise-lane; pair of semi-detached houses, Watchyard-lane, for Mr. Loines; house, Moss Side, for Mr. V. Blanchard; two pairs houses, Raven Meols-lane, for Major Roome; house, Montague-road, for Mr. Robertson; three bungalows, Argarmeols-road, for Mr. Gregson; house, Shireburn-road, for Mr. Godfrey; five pairs houses, Whitehouse-lane, for Mr. J. Lovett.

FRODINGHAM.—The old Council Chambers at Frodingham are to be converted into a maternity home.

GILLINGHAM.—Plans passed by T.C.: House, First-avenue, Captain Jones; house, First-avenue, Mrs. R. Capeling; house, Bredhurst-road, Mr. J. R. Carter; two bungalows, 42 and 43, Orchard-road, Mr. F. W. Knight; house, Canadian-avenue, Mr. Greenwood; and two houses, Barnsole-road, Mr. A. W. Little.

GLAMORGANSHIRE.—The Penybont R.D.C. has applied for sanction to erect a further 100 houses.—The Pontypridd U.D.C. is to invite tenders for the erection of 60 houses under 1923 Housing Act. Schemes to be proceeded with by the Pontypridd U.D.C. are as follows: Rhondda-road improvement, estimate £5,500; Ynysybwl-road diversion, £3,000; Duffryn-road improvement, £1,500; Ynysyngharad Park footbridge, £500; Station-square to Maesycoed widening, £1,000; Pwllgwaun sewer, £400; bath construction at Cilfynydd, £200; private street works at Sion-street, £2,500.

GREASBOROUGH.—Two houses, Church-street, for Mr. R. Cooper.

HALSTEAD.—Plans passed by U.D.C.: Three bungalows, Weevers-road, for Mr. F. W. Drury.

HORSFORTH.—Plans passed: Pair of houses in Stanhope-drive, for H. E. Riley; pair of houses in main road, for Messrs. Jennings & Rainbow; two pairs of houses in Victoria-crescent, for Messrs. Read Bros.; pair of houses in Rawdon-road, for J. Marsden's trustees; pair of houses in Victoria-walk, for Mr. J. B. Lee.

HULME CULTRAM.—Plan passed: Shop, Eden-street, Silloth, for G. Finley.

KEIGHLEY.—Plans passed by T.C.: bungalow at Oakworth-road, for J. Calvert; two houses at Grafton-road, for J. Driver & Son; house at Hog Holes-lane, for Arthur Nicholson; two houses at Highfield-lane, for Baron Roff. The M.H. has sanctioned the erection of ten new houses at Steeton.

LAMPETER.—The T.C. is to consider a scheme for recreation ground lay-out, to include construction of an artificial lake.

LLANELLY.—The G.W.R. Co. has notified the B.C. that plans for the proposed new railway station and sidings are well advanced.

LONDON (HACKNEY).—Plans passed by B.C.: Mr. E. J. Saunders, Wesleyan Central Hall, Mare-street; Messrs. L. H. & R. Roberts, extension to the electricity sub-station, Dalston-lane.

LONGBENTON.—The M.H. have agreed to the erection of 40 houses as an instalment and intimated that favourable application will be given to the proposal of building another 40 when substantial progress has been made with the first batch.

LONGTON.—The R.D.C. have approved a plan submitted to them for the erection of a new auction mart.

LOWESTOFT.—Plans passed: Two cottages, Beccles-road, for Mrs. R. Peck.

MERTHYR TYDFIL.—The B.C. is to acquire a housing site at Abercanaid, and is endeavouring to obtain a site at Merthyr Vale.

MIDDLESTONE MOOR.—A movement is on foot to build 12 single homes at Middlestone Moor, for the widows of deceased aged miners, in Coundon, Leasingthorne, and Middlestone.

MONMOUTHSHIRE.—The C.E.C. has requested the architect to submit plans for a new school at Markham. The Committee has been requested by the Llantarnam U.D.C. to provide new school accommodation at St. Dial's.—The C.C. is to carry out a diversion of the main road between Chepstow and Newport.

MORLEY.—Plans passed: Milk house, High-street, for Messrs. J. Sharp & T. Hall; conversion of house into two separate houses in America Moor-lane, for Mr. E. Pearson; house, Scatchard-lane, for Mr. A. Hartley.——The Surveyor has been instructed to prepare estimates for the making watertight of the pond in the public park.

NEWCASTLE.—The office-bearers of the Church of the Divine Unity are giving careful consideration to the question of the erection of a new church in that city.

NEWPORT (MON).—Plans passed by T.C.: Mendalgief-road, three houses, for W. Christerson; Cardigan-place, two houses, for J. Broadfoot; Vivian-road, bakery, for L. Fearis; Vine-place, stables, for Geo. Clarke; Surrey-place, two houses, for E. W. & S. H. Weston; Oswald-road, house, for Ivor James; Spitty-road, three houses, for Arthur Whant; Allt-yr-yn-road, house, for S. G. Atkins; Lliswerry-road, two houses, for W. H. Lewis; Cornwall-road, two houses, for E. King & Co.; Alteryn-road, two houses, for Wm. Watts; Batchelor-road, house, for J. Lewis.

NEWTON ABBOT.—The U.D.C. has received sanction from the M.H. to borrow £1,055 for the construction of a reinforced concrete roadway in Market-square.

OSSETT.—Plans passed: House and shop, Dewsbury-road, for Mr. Hinchliffe Oldroyd.——Tenders are being invited by the B.S. for the erection of a new pumping station on the site of the old Pildacre Colliery.

PAIGNTON.—A site has just been secured upon which to erect a new Roman Catholic Church.

PEMBROKESHIRE.—The Narbeth R.D.C. has applied for sanction to borrow £3,650 for road widening works.

PENZANCE.—The T.C. has decided to apply for sanction to borrow £1,800 for the purpose of carrying out a scheme prepared by the B.S. for providing lavatory accommodation on the site of the old post-office.

PLYMOUTH.—The Special Works Committee is applying to the M.H. for sanction to a loan of £15,000 for the improvement of Lanhydrock-road; a scheme is being drawn up by a sub-committee of the Corporation for the extension of the mental hospital.

PONTARDAWE.—The Council has instructed the architect to select a site for erection of houses at Cwmllynfell.

PUDSEY.—The Corporation propose to invite tenders for the erection of between 100 and 200 houses of the concrete type.

RHONDDA.—The U.D.C. is to construct a bathing pool at Gelli Park, at an estimated cost of £400. The Council will also lay out as a recreation ground certain lands at Trehavod.

RHYMNEY.—The U.D.C. has received plans of 50 houses which the Tredegar Coal & Iron Co. propose to erect at Abertysswg.

ROTHWELL.—Plans passed: House, at Carlton, for Mr. A. Gray; house, Leadwell-lane, for Mr. R. H. Ward.

RYTON.—The U.D.C. Council's architects are now in a position to obtain tenders for the erection of 30 houses at Hexham Old-road.——The U.D.C. has received sanction from the M.H. to borrow £34,000, for road construction.

ST. AUSTELL.—Revised plans for the extension of the Cottage Hospital have been approved by the Hospital Committee. The estimated cost of the work is over £3,000.

SEDGEFIELD.—An inquiry has been held by Mr. H. E. Bryne, Inspector on behalf of the Ministry of Health, relative to the application of the R.D.C. to borrow £2,200 for works of private street improvements in West Cornforth; also for £2,600 for private street improvements in the parish of Ferryhill; and £1,150 for similar work in the parish of Chilton.——Plans passed by R.D.C.: House and shop, Dean Bank, for Mr. J. McKeen; bungalow, Ferryhill, for Mr. J. Wallis.

SHOTTON.—A proposed technical school for Deeside is to be erected at Shotton.

SOUTH KIRBY (YORKSHIRE).—A site is being selected upon which to erect a new elementary school; the approval of the West Riding C.C. is being sought.

SOWERBY BRIDGE.—Plans passed: Four houses, for Mr. F. Stockton.

SPENBOROUGH.—Plans passed: Two houses, Huddersfield-road, Liversedge, for Mr. J. W. Pickles; house, Halifax-road, Hightown, Liversedge, for Mr. B. Anderson; two houses, Union-road, Liversedge; house, Corn Mill-lane, Liversedge; house, at Little Gomersal; house, Huddersfield-road, Liversedge; house, Roberttown-lane, Liversedge; two houses, Bradford-road, Cleckheaton; two houses, Church-lane, Gomersal, and two houses at Church-lane, Gomersal.

STANLEY (YORKS).—The Surveyor to the U.D.C. has been instructed to prepare a plan for the erection of a mortuary in Coach-road.

STOCKTON.—Plans passed by the U.D.C.: Pair of semi-detached houses, in Leven-road, West Norton, for Mr. J. W. Harrison; house in Hartburn-road, for Mr. F. H. Ridley; pair of bungalows in Yarm-road, for Mrs. H. Brown and Mrs. Moodie; pair of semi-detached houses in Junction-road, Norton, for Rev. J. W. F. Phillipson.

TORPOINT.—The Antony Estate has laid out plots for the erection of 44 bungalows, the building of some of which is already in progress.

WEST PENWITH.—The R.D.C. has decided to engage Mr. A. P. I. Cotterell, engineer, to prepare plans and specifications for a water supply and sewerage scheme for Carbis Bay and Lelant for presentation to the M.H.

WILLESDEN.—Plans passed by U.D.C.: Two houses, 82–88, Chatsworth-road, Cricklewood, for C. W. B. Simmonds.

YEOVIL.—The Somerset and Dorset section of the National Farmer's Union have decided to erect their new bacon factory on a site which has recently been acquired at Yeovil.

FIRES.

CROYDON.—A fire broke out at Croydon recently on the premises of Messrs. J. Gurney Nutting & Co., motor-body builders, Oval-road, and extended to the adjoining buildings of Messrs. Cresswell & Co., builders, and the Croydon Wood Heel Co. In a short time all the buildings, which cover an area of 80 yds. by 30, were a mass of flames. Damage was done to the extent of many thousands of pounds.

LEICESTER.—A fire occurred recently at the large hosiery factory of Messrs. Toller & Lankester, at Leicester. The building was destroyed, involving a loss of £30,000.

SELBY.—A destructive fire has occurred on the premises of Messrs. W. Bursell, Ltd., forage merchants Station-road.

* See also our List of Contracts, Competitions, etc.

PRICES CURRENT OF MATERIALS *

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry.—Ed.]

BRICKS, &c.

Per 1,000 Alongside, in River Thames up to London Bridge.

	£ s. d.
Best Stocks	3 19 0
Second Hard Stocks	3 14 0

Per 1,000. Delivered at London Goods Stations.

	£ s. d.		£ s. d.
Fletton, at King's Cross	2 13 3	Best Blue Pressed Staffs.	9 0 0
Do. grooved for plaster	2 15 3	Do. Bullnose	9 10 0
Do. Bullnose	3 8 3	Blue Wire Cuts	7 0 0
Best Stourbridge Fire brick:—			
2½ in.	11 3 0	3 in.	13 2 0
GLAZED BRICKS—			
Best White Ivory, and Salt Glazed Stretchers	22 0 0	D'ble Str'tch'rs	30 10 0
Headers	21 10 0	D'ble Headers	27 10 0
Quoins. Bullnose and 4½ in. Flats	28 10 0	One Side and two Ends	31 10 0
		Two Sides and one End	32 10 0
		Splays and Squints	30 0 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours, Hard Glaze, £5 10s. extra over white.

BREEZE CONCRETE SLABS.

Delivered London.

	s. d.		s. d.
2 in. per yd. super	2 1	3 in. per yd. super	2 11
2½ in. „	2 6	4 in. „	3 6

	s. d.	
Thames Ballast	10 6	per yard.
Pit Sand	14 9	„ „
Thames Sand	15 6	„ „
Best Washed Sand	15 6	„ „
½ in. Shingle for Ferro-Concrete	14 0	„ „
¼ in. „ „	15 0	„ „
½ in. Broken Brick	10 6	„ „
Pan Breeze	7 6	„ „

delivered 2 miles radius Paddington.

Per ton delivered in London area in full van loads.

Best Portland Cement, British Standard Specification Test £2 18 0 to	£3 3 6
51/- alongside at Vauxhall in 80-ton lots.	
Ferrocrete per ton extra on above	0 10 0
Super Cement	4 8 0
Roman Cement	8 15 0
Parian Cement	5 15 0
Keene's Cement, White	5 15 0
„ „ Pink	5 10 0
Plaster, Coarse, Pink	3 0 0
„ „ White	3 12 6
„ Fine	5 12 0
Sirapite, Coarse	3 9 0
„ Finish	3 17 0
Grey Stone Lime	2 10 9
Chalk Lime	2 10 9
Best Ground Blue Lias Lime	2 13 6
Hair	27 0 0
Granite Chippings	1 12 0

NOTE.—Sacks are charged 1s. 9d. each and credited 1s. 6d. if returned in good condition within three months, carr. pd.

Stourbridge Fireclay in s'cks 35s. 0d. per ton at rly. dpt.

STONE.

	s. d.
BATH STONE—delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	2 9½
Do. do. delivered in railway trucks at Nine Elms, L. & S.W.R., per ft. cube	2 11½
PORTLAND STONE—	
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, L. & S.W.R., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 4
Do. do. delivered on road wagons at above stations, per ft. cube	4 5

White basebed, 3d. per ft. cube extra.

NOTE.—½d. ft. cube extra for every foot over 20 ft. *average*, and ¼d. beyond 30 ft.

HOPTON-WOOD STONE.

Delivered at any Goods Station, London.

Small random blocks, up to 10 ft. cube. Per ft. cube	7/-
Random blocks from 10 ft. and over „	17/-
Sawn two sides „	27/-
Sawn three or four sides „	32/-

YORK STONE, BLUE—*Robin Hood Quality.*

Delivered at any Goods Station London.	s. d.
6 in. sawn two sides landings to sizes (under 30 ft. super.) Per Ft. Super	5 3
6 in. rubbed two sides, ditto „	5 9
3 in. sawn two sides slabs (random sizes) „	2 1½
2 in. to 2½ in. sawn one side slabs (random sizes) „	1 5½
1½ in. to 2 in. ditto, ditto „	1 3

HARD YORK—

Delivered at any Goods Station London.	s. d.
Scappled random blocks Per Ft. Cube	5 6
6 in. sawn two sides landing to sizes (under 40 ft. super.) Per Ft. Super	5 4½
	6 0½
6 in. rubbed two sides ditto „	2 10
4 in. sawn two sides slabs (random sizes) „	2 6
3 in. ditto. ditto „	2 6
2 in. self-faced random flags Per Yard Super	7 11

ARTIFICIAL STONE.

Delivered in London Area in full van loads.	s. d.
Plain per ft. cube	6 6
Moulded „ „	7 9
Cills „ „	8 3

WOOD.

GOOD BUILDING DEAL.

Inches.	per stan.	Inches.	per stan.
4 × 11	£34 0	3 × 6	£25 0
4 × 9	32 0	3 × 11	31 0
4 × 8	27 0	2 × 11	32 0
4 × 7	27 0	3 × 9	30 0
3 × 8	25 10	2½ × 9	30 0
3 × 7	25 10	3 × 4½	25 0
2½ × 7	25 0	3 × 4	25 0

WOOD (*Continued*).

PLANED BOARDS.

1 × 11	£36 0
1 × 9	£34 0

PLAIN EDGE FLOORING.

Inches.	per sq.	Inches.	per sq.
¾	21/-	1¼	33/6
⅞	23/-	1½	38/6
1	26/-		

TONGUED AND GROOVED FLOORING.

Inches.	per sq.	Inches.	per sq.
1	26/-	¾	17/6
1¼	33/6	⅞	21/-
1½	38/6	1	26/-

MATCHINGS (BEST).

Inches	s. d.
½ × 2	2 6 per 100 ft.

BATTENS

SAWN LATHS.

Per bundle	0 2 9
Dry Wainscot Oak, per ft. super, as inch	0 2 0 to 0 2 6
¼ in. do. do.	0 1 6 to 0 2 0
Dry Mahogany—Honduras, Tabasco, African, per ft. super, as inch	0 1 9 to 0 2 6
Cuba Mahogany	0 3 0 to 0 3 6
Teak (Rangoon, Moulmein or Java), per load	45 0 0 to 50 0 0
American Whitewood planks, per ft. cube	0 14 0 to 0 16 0
Best Scotch Glue, per cwt.	4 10 0 to —
Liquid Glue, per cwt.	4 7 0 to 5 10 0

SLATES.

1st quality slates from Bangor or Portmadoc carriage paid in full truck loads to London Rate Station. Per 1,000 of 1,200.

	£ s. d.		£ s. d.
24 by 12	37 12 6	18 by 10	21 2 6
22 by 12	34 0 0	18 by 9	18 12 6
22 by 11	31 5 0	16 by 10	17 12 6
20 by 12	29 15 0	16 by 8	13 15 0
20 by 10	25 12 6		

TILES.

	Per 1,000 f.o.r. London. £ s. d.
Best machine-made tiles from Broseley or Staffordshire district	5 7 6
Ditto hand made ditto	5 12 6
Ornamental ditto	5 17 6
Hip and valley tiles (per dozen) Hand made	0 9 6
Hip and valley tiles (per dozen) Machine made	0 9 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION PER TON—

	£ s. d.
R. S. Joists, cut and fitted	13 10 0
Plain Compound Girders	15 10 0
Stanchions	17 10 0
In Roof Work	20 10 0

MILD STEEL ROUNDS.

To London Station, per ton.

Diameter.	£ s. d.	Diameter.	£ s. d.
⅜ in.	16 10 0	⅝ in. to ¾ in.	13 10 0
½ in.	14 10 0	¾ in. to 2¼ in.	13 0 0

WROUGHT-IRON TUBES AND FITTINGS—

(Discount off List for lot of not less than £7 net value delivered direct from Works, 2½ per cent. less above gross discounts, carriage forward if sent from London Stocks.)

	Tubes.	Fittings.	Flanges.
Gas	52½%	52½%	62½%
Water	47½%	47½%	57½%
Steam	42½%	42½%	52½%
Galv'd—			
Gas	37½%	42½%	52½%
Water	31½%	37½%	47½%
Steam	25 %	32½%	42½%

C.I. HALF-ROUND GUTTERS—London Prices, ex Works.

Per yd. in 6 ft. lengths.	Gutters.	Angles and Nozzles.	Stop Ends.
3 in.	1/1½	11d.	3½d.
3½ in.	1/2½	1/0½	3½d.
4 in.	1/4	1/1½	3½d.
4½ in.	1/5½	1/4	4d.
5 in.	1/7½	1/5½	5d.

O.G. GUTTERS.

3 in.	1/6½	1/2½	3½d.
3½ in.	1/8½	1/2½	3½d.
4 in.	1/7½	1/4	3½d.
4½ in.	1/9½	1/6½	4d.
5 in.	2/1½	1/9	5d.

RAIN-WATER PIPES, &c.

Per yd. in 6 fts.	Pipe.	Bends, stock angles.	Branches, stock angles.
2 in. plain	1/7½	1/1½	1/8
2½ in. „	1/9½	1/4	2/0½
3 in. „	2/1½	1/8	2/5½
3½ in. „	2/6½	1/11½	2/10½
4 in. „	2/11½	2/4½	3/5½

L.C.C. COATED SOIL PIPES—London Prices ex works.

	Pipe.	Bends, stock angles.	Branches, stock angles.
	s. d.	s. d.	s. d.
2 in. per yd. in 6fts plain	3 0½	2 2½	2 8
2½ in. „	3 6½	2 5½	3 3½
3 in. „	4 2½	2 8	4 0½
3½ in. „	4 7	3 3½	4 8½
4 in. „	5 1	3 9½	5 5

L.C.C. COATED DRAIN PIPES—London Prices ex works.

	Pipe.	Bends, stock angles.	Branches stock angles.
	s. d.	s. d.	s. d.
3 in. per yd. in 9ft. lengths	4 9	5 8	8 10
4 in. „ „	6 3	6 8	11 4
5 in. „ „	7 6	11 6	18 2
6 in. „ „	8 10	14 4	23 5

Per ton in London.

	£ s. d.		£ s. d.
IRON—			
Common Bars	13 10 0	to	14 10 0
Staffordshire Crown Bars—good merchant quality	14 0 0	..	15 0 0
Staffordshire "Marked Bars"	17 0 0	..	18 0 0
Mild Steel Bars	12 10 0	..	13 10 0

METALS (*Continued*).

	£ s. d.		£ s. d.
Steel Bars, Ferro-Concrete quality, basis price	13 0 0	..	14 0 0
Hoop iron, basis price	16 10 0	..	17 10 0
„ Galvanised	31 0 0	..	32 0 0
Soft Steel Sheets, Black—Ordinary sizes to 20 g.	15 0 0	..	16 0 0
„ „ „ 24 g.	16 0 0	..	17 0 0
„ „ „ 26 g.	18 0 0	..	19 0 0
Sheets Flat Best Soft Steel, C.R. & C.A. quality—Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	21 10 0	..	22 10 0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 22 g. and 24 g.	22 10 0	..	23 10 0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 26 g.	24 10 0	..	26 10 0
Flat and Galvanised Corrugated Sheets—Ordinary sizes, 6 ft. to 9 ft. to 20 g.	21 10 0	..	22 10 0
Ordinary sizes, 6 ft. to 9 ft. to 22 g. and 24 g.	22 0 0	..	23 0 0
Ordinary sizes, 6 ft. to 9 ft. to 26 g.	24 0 0	..	25 0 0
Sheets Galvanised Flat, Best quality—Best Soft Steel Sheets, 6ft. by 2ft. to 3ft. to 20g. and thicker	23 10 0	..	24 10 0
Best Soft Steel Sheets, 22 g. and 24 g.	24 10 0	..	26 10 0
Best Soft Steel Sheets, 26 g.	26 0 0	..	27 0 0
Cut Nails, 3in. to 6 in.	20 10 0	..	22 0 0

(under 3in. usual trade extras.)

METAL WINDOWS—Standard sizes suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 1/4 to 1/7 per foot super.

LEAD, &c.

(Delivered in London.)	£ s. d.
LEAD—Sheet, English, 4 lb. and up	44 10 0
Pipe in coils	45 0 0
Soil Pipe	48 0 0
Compo pipe	51 0 0

NOTE—Country delivery, 30s. per ton extra: lots under 3 cwt., 2s. per cwt. extra and over 3cwt. and under 5 cwt., 1s.6d. per cwt. extra. Cut to sizes, 2s. cwt.extra.

Old lead, ex London area, at Mills per ton	32 0 0	..	—
Do., ex country, carriage forward per ton	33 0 0	..	—

PLUMBERS' BRASS WORK.

Delivered in London.

NEW RIVER PATTERN SCREW DOWN BIB COCKS FOR IRON.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
29/-	45/-	76/-	153/-	246/-	510/- per doz.

NEW RIVER PATTERN SCREW DOWN STOP COCKS AND UNIONS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
41/6	62/-	92/-	174/-	300/-	588/- per doz.

NEW RIVER PATTERN SCREW DOWN MAIN FERRULES.

½ in.	¾ in.	1 in.
39/6	60/-	116/6 per doz.

CAPS AND SCREWS.

1¼ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.
7/6	10/-	14/-	23/-	30/-	42/- per doz.

DOUBLE NUT BOILER SCREWS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2in.
7/6	11/6	17/-	29/-	36/-	63/- per doz.

BRASS SLEEVES.

1¼ in.	2 in.	3 in.	3½ in.	4 in.
10/-	12/-	20/-	24/-	31/- per doz.

NEW RIVER PATTERN CROYDON BALL VALVES, S.F.

¼ in.	½ in.	1 in.	1½ in.	1½ in.
35/-	56/-	98/-	162/-	228/- per doz.

DRAWN LEAD P. & S. TRAPS WITH BRASS CLEANING SCREW.

	1½ in.	1½ in.	2 in.	3 in.
8 lbs. P. traps	33/-	41/-	56/-	101/- per doz.
8 lbs. S. traps	35/-	45/-	66/-	126/- „

	£ s. d.		
COPPER—			
Strong Sheet per lb.	0 2 3	..	—
Thin „ „	0 2 4	..	—
Copper nails „ „	0 2 3	..	—
Copper wire „ „	0 2 4	..	—
TIN—English Ingots „	0 2 10	..	—
SOLDER—Plumbers' „	0 1 3	..	—
Tinmen's „	0 1 5	..	—
Blowpipe „	0 1 7	..	—

PAINTS, &c.

	£ s. d.
Raw Linseed Oil, in pipes per gallon	0 3 7
„ „ „ in barrels „	0 3 9
„ „ „ in drums „	0 4 0
Boiled „ „ in barrels „	0 4 0
„ „ „ in drums „	0 4 3
Turpentine in barrels „	0 6 9
„ in drums (10 gall.) „	0 7 0
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)	57 10 0

GENUINE WHITE LEAD PAINT—"Father Thames," "Nine Elms," "Park," "Supremus," "St. Paul's," "Spedol" and other best brands (in 14 lb. tins) not less than 5 cwt. lots

per ton delivered	80 15 0
Red Lead, Dry (packages extra) per ton	54 10 0
Best Linseed Oil Putty per cwt.	0 16 0
Filocol per cwt.	0 15 6
Size, XD Quality ...fkn.	0 3 6

[Concluded on next page.]

* The information given on this page has been specially compiled for THE BUILDER and is copyright. Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

PRICES CURRENT OF MATERIALS (*contd.*)

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

Per Ft.		Per Ft.	
15 oz. fourths	3½d.	32 oz. fourths	8½d.
15 „ thirds	4½d.	32 „ thirds	10½d.
21 „ fourths	5½d.	Obscured Sheet. 15 oz.	4d.
21 „ thirds	6½d.	„ „ 21 „	5½d.
26 „ fourths	6d.	Fluted 15oz. 6½d., 21oz. 9½d.	
26 „ thirds	8d.	En'lled 15oz. 5½d., 21oz. 7½d.	

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per Ft.
Rolled plate	4½d.
Rough rolled	5½d.
Rough rolled	5½d.
Figured Rolled, Oxford Rolled, Baltic, Oceanic, Arctic, Stippolyte, and small and large Flemish white	6½d.
Ditto, tinted	9d.
Rolled Sheet	6d.
White Rolled Cathedral	5½d.
Tinted do.	7½d.

Cast Plate is same price as rough rolled.

VARNISHES, &c.

		Per gallon. £ s. d.
Oak Varnish	Outside	0 14 0
Fine ditto	ditto	0 16 0
Fine Copal	ditto	0 18 0
Pale Copal	ditto	1 0 0
Pale Copal Carriage	ditto	1 4 0
Best Ditto	ditto	1 12 0
Floor Varnish	Inside	0 18 0
Fine Pale Paper	ditto	0 18 0
Fine Copal Cabinet	ditto	1 2 6
Fine Copal Flatting	ditto	1 0 6
Hard Drying Oak	ditto	0 18 0
Fine Hard Drying Oak	ditto	0 19 0
Fine Copal Varnish	ditto	1 0 0
Pale ditto	ditto	1 2 0
Best ditto	ditto	1 12 0
Best Japan Gold Size		0 10 0
Best Black Japan		0 10 6
Oak and Mahogany Stain (water)		0 12 0
Brunswick Black		0 7 6
Berlin Black		0 14 6
Knotting (patent)		1 5 0
French and Brush Polish		0 17 0
Liquid Dryers in Terebine		0 9 0
Quimas Black Enamel		0 7 0

APRIL 28.—**Monifieth.**—HOUSES.—Erection of two houses at Ferry-road, Monifieth, for Town Council. Schedules, &c., can be obtained from Mr. D. Gowans, Town Clerk, Monifieth, or at his office, 26, Commercial-street, Dundee; or from Mr. C. A. Mackenzie, Burgh Surveyor, Monifieth. Plans may be seen at office of Architect, Mr. C. A. Mackenzie, Monifieth.

THE SCOTTISH BUILDER

BOYS FOR BUILDING TRADE

The negotiations which the Edinburgh Education Authority has been carrying on for some time with the Edinburgh, Leith, and District Building Trades' Association and the National Union of Building Operatives were brought to a conclusion at a conference held at the W. M. Ramsay Technical School to consider a suggested scheme for (1) encouraging boys to enter the building trades and (2) providing them with preliminary training. Over 40 representatives of the employers, operatives, the Education Authority, and the Merchant Company were in attendance. Mr. W. M. Ramsay, of the Education Authority, presided.

The scheme suggested, said the Chairman, provided that boys should be selected for preliminary training at the W. M. Ramsay Technical School, 20 each in masonry and bricklaying, 10 each in joinery and plaster work, and five in slaters' work; that the boys should attend the school daily, except Saturdays, for six hours, during six months; that this preliminary training should be accepted as an equivalent part of apprenticeship; that a maintenance allowance of 5s. per week should be paid to each lad during the six months, to be repaid by the employer to whom the lad was eventually allocated; that the training should include theoretical as well as practical indoor and outdoor instruction, the proportion to be settled by a committee composed of six representatives each of the employers, of the operatives, and of the Education Authority, with a representative each of the Merchant Company and the Heriot-Watt College, and that a grant should be asked from the Government.

Lord Dean of Guild Forrest; Mr. Watson, President of the Master Builders' Association; Mr. Gove, Secretary of the National Federation of Building Operatives, and Councillor Allan expressed general approval of the proposals. Eventually the following resolution was moved by Mr. Watson, seconded by Mr. Gove, and unanimously adopted, viz.:—"That this conference approves generally of the suggested scheme for encouraging boys to enter the building trades and for their preliminary training at the W. M. Ramsay Technical School, and remits to a joint committee of representatives of the masters, operatives, and the Education Authority to work out the scheme." A vote of thanks was accorded to the Chairman on the motion of the Lord Dean of Guild.

NEW BUILDINGS IN SCOTLAND.

Dunoon.—EXTENSIONS.—It is proposed to carry out some improvements at the Cottage Hospital, which include the erection of a lodge and the extension of the operating room.

Coatbridge.—ACCOMMODATION.—The Lanarkshire E.C. propose to ask the Catholic authorities to submit a report with regard to additional accommodation required at St. Augustine's R.C. School, and also as to the advisability of erecting a new school adjoining the existing school in Kildonan-street, Coatbridge.

Glenboig.—SCHOOLS.—The Lanarkshire E.C. has instructed the Master of Works to prepare plans for a new schoolhouse in connection with the Glenboig School. The authority has also recommended the Catholic authorities to erect a new infants' school in connection with the Glenboig R.C. School, which would form the nucleus of an entirely new school.

Elgin.—HOUSE.—The T.C. has passed plans, submitted by Mr. W. Morris, Aberlour, for a house at Victoria-crescent; and also for additions at the George Restaurant, Batchen-street.

Aberdeen.—HOSPITAL WORK.—At a recent meeting of the Hospital Committee of the Aberdeen District Board of Control plans and specifications for alterations and additions to Kingseat Mental Hospital were considered, and after making a few minor alterations to the plans the Committee agreed to remit them to the General Board of Control in Edinburgh for approval.

Paisley.—HOUSES, &c.—The Dean of Guild Court has passed the following plans: J. & J. Crangle, self-contained bungalow at Gartmore-road; W. Semple, self-contained house at Greenock-road; John Bryce, two tenements at Neilston-road; and R. W. Crawford, cottage in Calside-avenue.

Edinburgh.—BUNGALOWS, &c.—Plans passed by the Dean of Guild Court: Mr. A. Forbes, six bungalows at Queen's-gardens, Blackhall; A. L. Goodwin, bungalow at Corstorphine-road; G. A. Innes, bungalow at Brunton; G. S. Peat, bungalow at Midmar-drive, Morningside; W. & C. Skinner, four flatted villas at Craigleith-road; J. Sutherland, villa at Harelaw-road, Colinton; Alexander Sim, double villa at Riselaw-crescent, Comiston-road; W. A. Robertson, villa at Barnshol-road, Colinton; John M'Kay, double cottage at Queen's-road, Blackhall.

COMPETITIONS, CONTRACTS, &c.

NO DATE.—**Inverness.**—DEPARTMENT.—Various works of proposed new primary department at the Royal Academy, Inverness, for the Inverness County Education Authority. Schedules, &c., from Master of Works, 11, High-street, Inverness.

NO DATE.—**Lochee.**—ALTERATIONS, &c.—Alterations and additions to St. Margaret's School, Ancrum-road, Lochee, for the Dundee Education Authority. Schedules, &c., from Offices of the Authority, Shore-terrace, Dundee.

Fires.

Damage estimated at about £50,000 was caused recently by fire in the wool-spinning factory of Messrs. Alexander Bros., Ltd., Kilmarnock.

BUILDING TRADE WAGES IN SCOTLAND.*

THE following are the present rates of wages in the building trade in the principal towns of Scotland. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur:—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Brick-Masons' Labourers.	Plasterers' Labourers.
Aberdeen	1/7½	1/8½	1/7½	1/8	1/7½	1/7½	1/4½	1/0½	
Airdrie	1/7½	1/7½	1/7½	1/8	1/7	1/7	1/6½	1/2½	
Alexandria	1/7½	1/7½	1/7½	1/8	1/7	1/7	1/6½	1/2½	
Arbroath	1/6½	1/6½	1/6½	1/7½	1/6½	1/6½	1/5½	1/1½	
Ayr	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/6½	1/2½	
Bathgate	1/7½	1/7½	1/7½	1/8	1/7	1/7	1/6½	1/1½ to 1/2½	
Blairgowrie	1/7½	—	1/7½	1/7	1/7	1/7	1/6½	—	
Bo'ness	1/7½	1/7½	1/7½	1/8	1/7	1/7	1/6½	1/2½	
Coatbridge	1/7½	1/7½	1/7½	1/8	1/7	1/7	1/6½	1/2½	
Dumbarton	1/7½	1/7½	1/7½	1/8	1/7½	1/7½	1/6½	1/2½	
Dumfries	1/5	1/5	1/5	1/6	1/5½	1/6	1/5½	1/1 to 1/1½	
Dundee	1/7½	1/7½	1/7½	1/8	1/7	1/7	1/6½	1/2½	
Dunfermline	1/7½	1/7½	1/7½	1/8	1/7½	1/7½	1/6½	1/2½	
Edinburgh	1/7½	1/7½	1/7½	1/8	1/8	1/7	1/6½	1/2½	
Falkirk	1/7½	1/7½	1/7½	1/8	1/7	1/7	1/6½	1/2½	
Fort William	1/7½	1/6½	1/6½	1/7	1/6	1/6	1/6½	1/2	
Galashiels	1/5½	1/5½	1/5½	1/6	1/5½	1/5½	1/6	1/1½	
Glasgow	1/7½	1/7½	1/7½	1/8	1/7	1/7	1/6½	1/2½	
Greenock	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/5½	1/0 to 1/2½	
Hamilton	1/7½	1/7½	1/7½	1/8	1/7	1/7	1/6½	1/2½	
Hawick	1/5½	1/5½	1/5½	1/6	1/5	1/5	1/5½	1/2	
Helensburgh	1/7½	1/7½	1/7½	1/8½	1/8	1/7½	1/6½	1/2½	
Inverness	1/4	—	1/3½	1/4	1/4½	1/4	1/3½	10½d. to 1/2½	
Kilmarnock	1/7½	1/7½	1/7½	1/8	1/7	1/7	1/6½	1/2½	
Kirkcaldy	1/7½	1/7½	1/7½	1/8	1/7½	1/7½	1/6½	1/2½	
Kirkwall	1/4½	1/4½	1/3½	1/4	1/4½	1/4	1/3	1/0	
Lanark	1/7½	1/7½	1/7½	1/8	1/7	1/7	1/5½	1/2½	
Leith	1/7½	1/7½	1/7½	1/8	1/7	1/7	1/6½	1/2½	
Motherwell	1/7½	1/7½	1/7½	1/8	1/7	1/7	1/6½	1/2½	
Perth	1/7½	1/7½	1/7½	1/8	1/7	1/7	1/6½	1/2½	
Stirling	1/7½	1/7½	1/7½	1/8	1/7	1/7	1/6½	1/2½	
Stirlingshire (Eastern District)	1/7½	1/7½	1/7½	1/8	1/7	1/7	1/6½	1/2½	
Wishaw	1/7½	1/7½	1/7½	1/8	1/7	1/7	1/6½	1/2½	

* The information given in this table is copyright. The rates of wages in the various towns in England and Wales are given on page 695.

CURRENT PRICES FOR BUILDING WORK IN LONDON*

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	11	6
Add if in clay	" "	1	0
Add for every additional depth of 6 ft.	" "	0	6
Planking and strutting to trenches	per foot super	0	5
Do. to sides of excavation, including shoring	" "	1	0

CONCRETOR.

Portland cement concrete in foundation 1 to 6 ..	per yard cube	35	0
Add if in underpinning in short lengths	" "	7	6
Add if in floors 6 in. thick	" "	3	6
Add if in beams	" "	4	0
Add if aggregate 1 : 2: 4	" "	10	0
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	" "	3	3

BRICKLAYER.

		£	s.	d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	30	0	0
Add if in stocks	"	7	10	0
Add if in Staffordshire blues	"	22	0	0
Add if in Portland cement and sand	"	2	0	0

FACINGS.

Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	0	1½

POINTING.

Neat flat struck or weathered joint	" "	0	0	3

ARCHES.

Extra only to the price of ordinary brickwork :—				
Fair external in half brick rings	" "	0	0	10
Axed in stocks	" "	0	1	9
Rubbed and gauged jointed in putty camber or segmental	" "	0	6	0

SUNDRIES.

Damp course in double course of slates breaking joint and bedded in Portland cement	" "	0	1	1
Setting ordinary register grates and stoves	each	1	0	0
Setting kitchener, including forming flues, &c., with all necessary fire bricks	"	4	15	0

ASPHALTER.

		s.	d.
Half-inch horizontal damp course	per yard sup.	4	3
Three-quarter-inch vertical damp course	" "	9	0
½ inch on flats in two thicknesses.....	" "	6	6
Angle fillet	per foot run	0	3
Skirting and fillet 6 in. high	" "	1	3

MASON.

York stone templates fixed	per foot cube	12	6
York stone sills fixed	" "	21	6
Bath stone and all labour fixed	" "	10	6
Portland stone fixed	" "	19	6

SLATER.

Welsh 16 in. × 8 in. 3 in. lap, including nails....	per square	72	9
Do. 20 in. × 10 in. Do. Do.	"	80	9
Do. 24 in. × 12 in. Do. Do.	"	90	0

CARPENTER AND JOINER.

Fir framed in plates .....per foot cube		5	3
Do. joists	" "	5	9
Do. roofs, floors and partitions	" "	6	3
Do. trusses	" "	8	3

		¾"	1"	1¼"	2"
Deal rough close boarding	per sq.	38/-	44/-	50/-	80/-

Flat centering for concrete floor, including struts or hangers .. "		50	0
Do. to beams .....per ft. sup.....		1	0
Centres for arches ..... "		1	6
Gutter boards and bearers ..... "		1	0

FLOORING.		¾"	1"	1¼"	1½"
Deal-edges shot	per sq.		49/-	58/-	67/-
Do. tongued and grooved	"		54/-	65/-	72/-
Do. matchings	"	45/-	55/-		
Moulded skirting, including backings and grounds .....per ft. sup.		1/6	1/9	2/0	2/6

SASHES AND FRAMES.		s.	d.
One-and-a-half moulded sashes or casements	per foot super	1	10
Two Do. Do. Do.	" "	2	1
Add for fitting and fixing	" "	0	4
Deal-cased frames with 1 in. inner and outer linings, 1¼ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares double hung, double hung with pulleys, lines and weights; average size.....	" "	3	9

DOORS.		1¼"	1¾"	2"
Two-panel square framed .....per ft. sup.		2/1	2/4	2/6
Four-panel Do.	"	2/5	2/8	2/11
Two-panel moulded both sides	"	2/8	2/11	3/2
Four-panel Do. Do.	"	2/11	3/2	3/5

CARPENTER AND JOINER—continued.

FRAMES.		s.	d.
Deal wrot moulded and rebated	per foot cube	14	0

		1"	1¼"	1½"
Plain deal jamb linings framed	per ft. sup.	1/8	1/9	2/0
Deal shelves and bearers	"	1/5	1/7	1/10
Add if cross tongued	"	2d.	2d.	2d.

STAIRCASES.	1"	1¼"	1½"	2"	2½"
Deal treads and risers in and including rough brackets	2/1	2/4	2/9	—	—
Deal strings wrot on both sides and framed	1/8	2/-	2/2	2/8	—

		s.	d.
Housings for steps and risers	each	0	11
Deal balusters, 1 in. × 1¼ in.	per ft. run.	0	9
Mahogany handrail; average 3 in. × 3 in.	" "	6	0
Add if ramped	" "	11	10
Add if wreathed	" "	23	9

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	8½d.	Rim locks	2/4
Sash fasteners .....11½d.		Mortice locks	5/3
Casement fasteners	1/5	Patent spring hinges and letting in to floor and making good	19/-
Casement stays.....	1/2		
Cupboard locks	1/5		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	17	0
Plain compound girders	"	20	0
Do. stanchions	"	23	0
In roof work	"	28	0

RAIN-WATER GOODS.

		3"	4"	5"	6"
Half-round plain rebated joints ..	ft. run	1/11	2/4½	3/7	4/-
Ogee Do. Do. ..	"	2/4½	3/1	3/10	4/9
Rain-water pipes with ears	"	2/9	3/7		
Extra for shoes and bends	each	4/4	5/11		
Do. stopped ends	"	1/11	2/4½	3/7	4/-
Do. nozzles for inlets	"	2/2	2/7	3/10	4/3

PLUMBER.

		s.	d.
Milled lead and laying in flashings and gutters	per cwt.	62	0
Do. Do. in flats	"	60	0
Extra labour and solder in coated cesspools	each	6	9
Welt joint	per ft. run.	0	6
Soldered seam	" "	1	6
Copper nailing	" "	0	6

		½"	¾"	1"	1½"	2"	4"
Drawn lead waste	per ft. run	1/2	1/11	2/2	3/10	4/7	
Do. service	"	1/10	2/5	2/10	4/3		7/6
Do. soil	"					3/3	8/2
Bends in lead pipe	each						
Soldered stop ends	"	1/2	1/8	2/1	2/10	3/6	
Red lead joints	"	11d.	1/-	1/3	1/11	2/4	4/10
Wiped soldered joints	"	2/10	3/6	4/-	4/11	6/6	9/9
Lead traps and cleaning screws	"				14/7	19/6	
Bib cocks and joints ..	"	6/4	9/7	15/4	41/-		
Stop cocks and joints	"	15/4	17/2	25/8	64/-		

PLASTERER.

		s.	d.
Render, float and set in lime and hair	per yard sup.	2	2
Do. Do. Sirapite	" "	2	4
Do. Do. Keen's	" "	3	3
Add sawn lathing	" "	1	5
Add metal lathing	" "	2	3
Portland cement screed	" "	1	10
Do. plain face	" "	3	0
Mouldings in plaster	per 1 girth	0	1½
One-and-a-half granolithic pavings	per yard sup.	5	9

GLAZIER.

21 oz. sheet plain	per foot sup.	0	9
26 oz. Do.	" "	1	1
Obscured sheet	" "	1	3
¼ in. rolled plate	" "	0	9
¼ in. rough rolled or cast plate	" "	0	11
¼ in. wired cast plate	" "	1	5

PAINTER.

		s.	d.
Preparing and distempering, 2 coats	per yard sup.	0	9
Knotting and priming	" "	0	7
Plain painting 1 coat	" "	0	9
Do. 2 coats	" "	1	2
Do. 3 coats	" "	1	9
Do. 4 coats	" "	2	4
Graining	" "	2	3
Varnishing twice	" "	1	9
Sizing	" "	0	3
Flatting	" "	0	7
Enamel	" "	1	1
Wax polishing	per foot sup.	0	6
French polishing	" "	1	2
Preparing for and hanging paper	per piece	2/- to	4/-

* These prices apply to new buildings only. They cover superintendence by foreman and carry a profit of 10 % on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployment Acts and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

APPRENTICESHIP ASSOCIATION

The Council of the Skilled Employment and Apprenticeship Association recently issued its eighteenth annual report. It states that during recent years there have been many signs throughout the country of a revived interest in apprenticeship and of a desire to reintroduce the system. New schemes of apprenticeship have, in fact, recently been set on foot in different parts of the country in various trades, but a real determination manifested by both employers and employed is needed to make these schemes a success. In many cases the period spent at whole time day technical schools is accepted as part of the apprenticeship. A serious feature of the present continued slackness of trade is the loss of skilled men due to their emigration to the Colonies and the United States, and while in some trades the employers' federations are insisting that their members shall keep up their full quota of apprentices, in others the employers are unwilling to bind themselves owing to the uncertain position and the rather antiquated state of apprenticeship law, and are only willing to take learners who are not indentured; in most trades, too, the trade unions by local agreements limit the number of apprentices in proportion to the journeymen. This practice, while good in theory, works out badly, and it is open to doubt whether in a very few years even under the present slackness of trade the supply of craftsmen will be found sufficient for our needs, while in the event of a trade revival the nation will certainly find itself short of skilled artisans. Modern industry needs, the report continues, workmen with brains and powers of invention, and the future industrial well-being of the country undoubtedly depends in a large measure on industry being able to command the services of workers endowed with a mentality and power of initiative of a high order; but many processes have been so sub-divided and simplified by machinery, even in highly-skilled trades that there is great difficulty in providing an all-round training in craftsmanship in the workshop and the factory.

The Association is awaiting with interest the publication of the details of the scheme of the Ministry of Labour for the after-care work of the children leaving the elementary schools, which is at present carried out by the London County Council.

GOVERNMENT HOUSING

In connection with the Government's Housing proposals, the Minister of Health, accompanied by the Under-Secretary of Health for Scotland, recently received representatives of various associations of the local authorities in England and Wales and Scotland, including the Association of Municipal Corporations, the Urban District Councils Association, the Rural District Councils Association, and the Corporation of Royal Scottish Boroughs. Representatives of the London County Council were also present. The Minister made a full statement on the housing question and on the steps taken by the Government up to the present time in the preparation of their housing policy.

Subsequently the representatives of the local authorities in England and Wales and in Scotland considered the Minister's statement and informed him that they had agreed on the following resolution:—

"That, having heard the statement of the Minister, this Conference, representing the Association of Municipal Corporations, the Urban District Councils Association, the Rural District Councils Association, and the London County Council, appoint a Committee to examine the points raised in the Minister's speech and the proposals contained in the Report of the National House Building Committee and to report thereon to this Conference and also to consider and report (*inter alia*) what State subsidy is necessary to enable local authorities to proceed with the erection of houses for the working classes."

The Scottish representatives concurred in this resolution.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach him not later than Tuesday evening.

*** Denotes *accepted*. † Denotes *provisionally accepted*.**
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modifications*.

ABERDEEN.—For (1) additional public lavatory accommodation for ladies at the Mansion House of Hazlehead; and (2) the conversion into a shelter of the old cottage within the Hazlehead polities, for the T.C.:—

Shelter—
Mason, &c.—*R. & S. Pringle..... £207
Carpenter, &c—*A. Hall & Son..... 101
Lavatory—
Carpenter, &c.—*Isaac Wishart & Son 221

ABERDEEN.—For the erection of 86 houses, for the T.C.:—

Brick and Concrete—			
*Corporation Works Department	£17,566	0	0
Carpenter—			
*George Lyall, Jun.....	11,322	2	2
Plaster and Cement—			
*Sellar & Company.....	3,086	13	0
Slater—			
*Forbes Morrison	3,138	14	0
Plumber—			
*A. M'Robb	4,569	0	0
Electrical—			
*J. Blaikie & Sons, Ltd.....	578	0	0
Painter and Glazier—			
*J. H. Davidson.....	1,044	3	6
Total	£41,304	12	8

ADEL.—For laying of new sewers to provide drainage for the Cookridge Garden Estate, for the Wharfedale R.D.C.:—
*H. J. Pullar, Rotherham £3,554

BARNSTAPLE.—For erection of 13 houses, Newport Building site, for the T.C. Mr. J. H. L. Brewer, Town Clerk, High-street, Barnstaple:—

J. Wakley, Barnstaple	£6,967	0	6
J. Morish & Sons, Barnstaple ..	6,654	0	0
The Western Builders, Barnstaple	6,495	0	0
W. Slee & Sons, Barnstaple	6,435	0	0
Holcombe & Sons, South Molton	6,417	18	0
*W. J. Squire, Barnstaple	6,380	0	0

BATLEY.—For extensions to Westfield Mills at Staincliffe, for Messrs. W. Crabtree & Sons, Ltd. Mr. W. Hanstock, architect, Batley:—
Mason's work—
*Harrison Spensley & Son, Morley £1,765 2

BENENDEN, KENT.—Detached house for Mr. J. D. Boylan. Mr. Arthur H. Burtenshaw, architect:—

F. Marshall & Sons	£2,075	0	
Lewis Edwards, Hawkhurst	1,832	0	
Elliott & Sons, Tenterden	1,821	17	
*R. Weeks & Sons, Tenterden	1,740	0	

BRADFORD.—For erection of 40 semi-detached houses at New Lime, Greengates:—
*A. Dickinson & Son, Idle.

BRADFORD.—For alterations at Thackley Open-Air School, for the T.C.:—

Masons' work—			
*W. Dawson & Sons.....	£126	18	8
Joiners' work—			
*R. H. Clarke	358	10	0
Plumbers' work—			
*R. Hainsworth	73	7	6

BRIDGNORTH.—For erection of 16 non-parlour type houses, for the T.C.:—
*Messrs. Amies & Sharratt..... £6,784

BRIDGNORTH.—For erection of public lavatories at the south end of West Castle-street, for the T.C.:—
*T. E. Lay & Son..... £288

EASTHAMPSTEAD.—For the erection of 10 houses, for the R.D.C.:—
*V. J. Berry, Winkfield £4,799

GELLYGAER.—For erection of (*a*) 50 houses; (*b*) 26 houses, Bargoed Heolddu site, for the U.D.C. Mr. P. Jones Williams, architect, Council Offices, Hengoed, Glam.:—

50 *Houses, Bargoed—*			
Simms & Cooke, Nottingham..	£26,950	0	0
Evan James, Ystrad Mynach	24,190	8	8
Batten & Jones, Ebbw Vale ..	23,632	0	0
*Horace J. Davis & Son, Bargoed	22,303	0	0
26 *Houses, Bargoed—*			
Simms & Cooke, Nottingham	13,550	0	0
Geo. Davies & Sons, Ystrad Mynach	12,230	0	0
Batten & Jones, Ebbw Vale ..	11,510	0	0
*Horace J. Davis & Son, Bargoed	11,202	0	0

HERTFORD.—For laying 830 yds. of 6 and 4 in. cast-iron water mains, for the T.C. Borough Surveyor, Hertford. Quantities by Mr. S. M. Senior, Assoc.M.Inst.C.E., M.Inst.T., M.Inst.M & Cy.E., Borough Surveyor and Engineer:—

Gunn, Macneill, Ltd., London..	£876	2	10
G. Percy Trentham, Ltd., London	840	0	0
James Haworth, Stainforth	795	7	10
A. E. Farr, London.....	792	15	0
W. & C. French, Buckhurst Hill	789	18	2
Chas. Ball, Letchworth.....	772	12	3
*George Roberts, Bengeo.....	777	4	7

HIGH HALDEN, KENT.—Alterations and additions to "Little Crampton," for Mr. F. R. Clapham. Mr. Arthur H. Burtenshaw, architect, Tenterden:—

R. Bridge, Tenterden	£377	10	
W. P. Woodgate, High Halden....	360	0	
*W. Elliott & Son, Tenterden.....	353	6	

KIDDERMINSTER.—For erection of new lavatories at the Children's Home, Franche:—
*C. Walker & Son, Kidderminster..... £258

LEEDS.—For concretors' work and granited rock asphalte paving in (1) Kirkstall-road; and (2) North and South-street improvement, for the Highways Department of the Corporation:—

(1) *Concretors' work—*
*David Speight & Sons, Leeds.
*Joseph Speight & Sons, Leeds.
Asphalters—
*Messrs. Bradshaw's, Ltd., Manchester.
(2) *Concretors' work—*
*By City Engineer's Department.
Asphalters:
*Messrs. Bradshaws, Ltd., Manchester.

LEEDS.—For erection of an electricity sub-station in Buslingthorpe-lane, for the Corporation:—
‡John Ferguson & Sons, Ltd., Leeds.

LEEDS.—For erection of an electricity sub-station in Montreal-avenue, Chapel Allerton, for the Corporation:—
‡ John Ferguson & Sons, Ltd., Leeds.

LEEDS.—For demolition of existing shop property and erection of new banking premises, for the Midland Bank, Ltd., at the junction of Meadow-lane and Victoria-road. Messrs. Perkins & Bulmer, architects, Leeds:—
*Messrs. Wm. Nicholson & Sons, Ltd., Leeds.

LONDON.—For making up Adley-street, for the Hackney B.C.:—

Mears Bros., Weardale-road, London	£1,393	19	8
G. Hodge, London	1,335	18	2
William Griffiths & Co., Ltd., Hamilton House, London	1,249	16	0
The London and County Public Works, Ltd., London ..	1,236	10	3
Anderson, G. J., London	1,200	16	2
*Fitzpatrick & Son, London	1,178	7	6

LONDON.—Erection of two shops at Bennett's Castle-lane, Becontree, for the L.C.C.:—

Baker, Hammond & Laver, Ltd., Rainham	£2,328	0	
James Eaton & Sons, Chelmsford ..	2,250	0	
W. J. Cearns, Stratford	2,185	15	
Clements (Grays), Ltd., Grays	2,180	0	
H. C. Horswill, Forest Gate	2,160	0	
Hammond & Miles, Ltd., Ilford	2,098	0	
*F. W. Romain & Sons, Chadwell Heath	1,926	0	

LONDON.—For (1) alterations to existing furniture and the provision of additional furniture for the Branch Library; (2) installation of electric light; and (3) redecoration of the building, as follows:—

(1) *Alterations to existing furniture and new furniture—*			
F. Sage & Co., Ltd., Gray's Inn-road	£439	0	
G. M. Hammer & Co., Bermondsey..	378	0	
Fuller Hills, St. Alphege Works ..	319	5	
H. Groves & Son, Stockwell-street ..	260	0	
*Libraco, Ltd., 42, Southwark-street, S.E.	239	0	
(2) *Installation of electric light—*			
H. Marchant, Greenwich	262	0	
H. W. Pope & Co., Deptford.....	248	10	
A. J. Hewens & Sons, Lewisham....	234	10	
*Haycraft & Sons, Ltd., Deptford Broadway	224	0	
(3) *Redecoration—*			
J. Hocking & Co., 38, Delafield-road	284	0	
W. Mills & Sons, Ltd., Kirkside-road	256	0	
W. Bickerton, Catford.....	222	10	
*W. Bailey, Greenwich	216	19	

MANOR ESTATE.—For the erection of 146 houses. Mr. F. E. P. Edwards, F.R.I.B.A., City Architect, Town Hall, Sheffield:—

*M. J. Gleeson, Sheffield— 101 houses	£35,083	2	7
*J. Laver & Sons, Ltd., Sheffield— 19 houses	7,170	10	0
*C. W. Alflat, Sheffield— 26 houses	9,160	0	0
146 houses	£51,413	12	7

LONDON.—For repairs to various houses owned by the Hammersmith B.C.:—

	Percentage (May 1, 1924, to March 31). 1925. above.	1925. below.	1926. above.	1926. below.	1927. above.	1927. below.
J. McManus, Ltd., 237, Hammersmith-road	95%	—	—	—	—	—
*Pioneer Works, Ltd., 254, King-street, W. 6	—	7½%	—	5%	—	5%
G. F. Rice, 61, Macfarlane-road, W. 12	Schedule rates.					
C. P. Roberts & Co., Ltd., Tyssen-street, Dalston-lane	30%	—	—	—	—	—

(Subject to adjustment in event of rise in wages.)

MIDDLESBROUGH.—For erection of 30 houses, Acklam-road Garden Colony, for the T.C. Mr. S. E. Burgess, Borough Engineer, Municipal Buildings, Middlesbrough :—

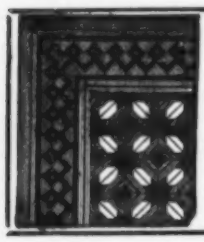
*Borough Engineer, Middlesbrough £11,700

NEWPORT (MON.).—For interior decoration of fifty houses on Somerton housing site, for the T.C. :—

*F. W. Lawrence £400

PORTSMOUTH.—For alterations and renovations at "Gorseway," Hayling, for Mr. J. D. Gilbert. Messrs. C. W. Bevis & Son, architects, Southsea :—

Tanner Bros.	£330
Sharp & Sons	297
*John Lay & Co.	280



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PONTEFRACT.—For erection of 306 houses, South Kirby, for the South Kirby, Featherstone & Hemsworth Collieries, Ltd. Messrs. Garside & Pennington, architects and surveyors, Pontefract :—

Waddington Bros., Wath-on-Dearne	£138,516
T. Wade & Sons, Ltd., Wath-on-Dearne	137,383
T. Hopkinson, Ltd., Worksop	135,937
W. Marlow & Sons, Sheffield	132,308
B. Pumfrey, Ltd., Gainsborough	131,835
J. W. Waller, South Elmsall	128,925
W. Birch & Sons, York	128,776
W. H. Treherne, Ltd., Rotherham	126,944
Swift Bros. & Haslam, Doncaster	125,427
Gelder Bros. & Woodcock, Pontefract	124,129
H. M. Nowell & Co., Ltd., Stockton-on-Tees	124,053
W. Horner, Pontefract	122,922
Jennings & Son, Ltd., Barnsley	122,369
Firth & Whittington, Doncaster	121,525
*Smith Bros., Ltd., Burnley	117,045

PONTEFRACT.—For erection of (1) bungalow for Mr. E. H. Clarke; (2) bungalow for Mr. F. H. W. Holmes. Messrs. Garside & Pennington, architects, Pontefract :—

Contract No. 1 :

Builders' work—			
Brown & Lodge	£618	3	6
Joiners' work—			
Midgley Pease	360	4	0
Plumbers' work—			
W. Pearson & Son	158	18	11
Tilers' work—			
Stewart Bros.	160	8	4
Plasterers' work—			
Mr. Harrison	79	12	3
Painters' work—			
R. Wheatley & Son	57	10	5

(All of Pontefract.)

Contract No. 2 :

Builders' work—			
Brown & Lodge	£299	13	10
Joiners' work—			
Midgley Pease & Son	173	8	4
Plumbers' work—			
W. Pearson & Sons	128	15	6
Plasterers' work—			
Mr. Harrison	39	18	1
Tilers' work—			
Stewart Bros.	65	4	11
Painters' work—			
R. Wheatley & Son	26	11	10

(All of Pontefract.)

SHEFFIELD.—For the reconstruction of bridge carrying Broughton-lane over the L. & N.E. Railway and the canal of the Sheffield and South Yorkshire Navigation Co., for the Corporation :—

‡Messrs. John Wilson & Sons, Birmingham £24,450

THORNABY.—For the erection of 50 houses, for the T.C. :—

*Boyd & Ward £17,625

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BETHNAL GREEN, LONDON, E.

WORCESTER.—For erection of class-room at the Open-Air School, for the E.C. :—

*C. H. Kimber £281

WORKSOP.—For erection of 50 houses, Retford road Housing site, for the U.D.C. Mr. G. Rawson, Surveyor, Council Offices, Worksop :—

*Mr. M. McCarrick, Worksop..... £475 10

Victoria and Albert Museum.

The Victoria and Albert Museum is now open until 9 p.m. on two evenings each week, namely, on Thursdays and Saturdays. The library and the students' rooms of the department of engraving, illustration and design, and textiles, will also be open on these evenings, when the usual facilities for study will be afforded. No charge is made on any day for admission.

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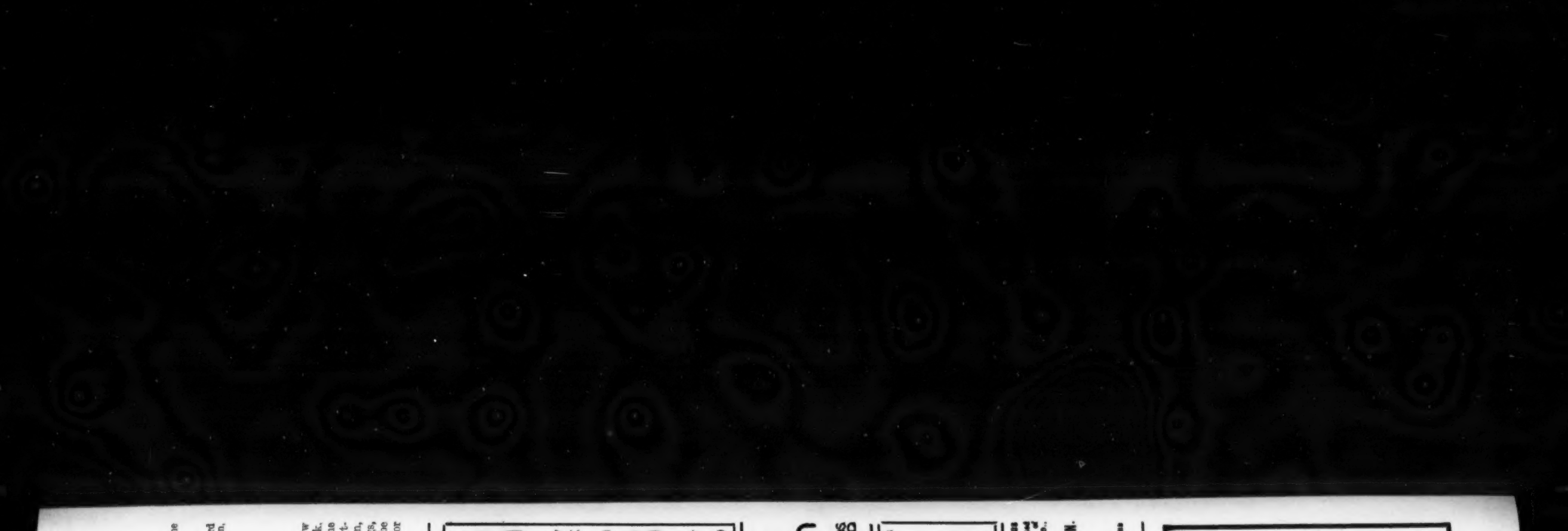
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